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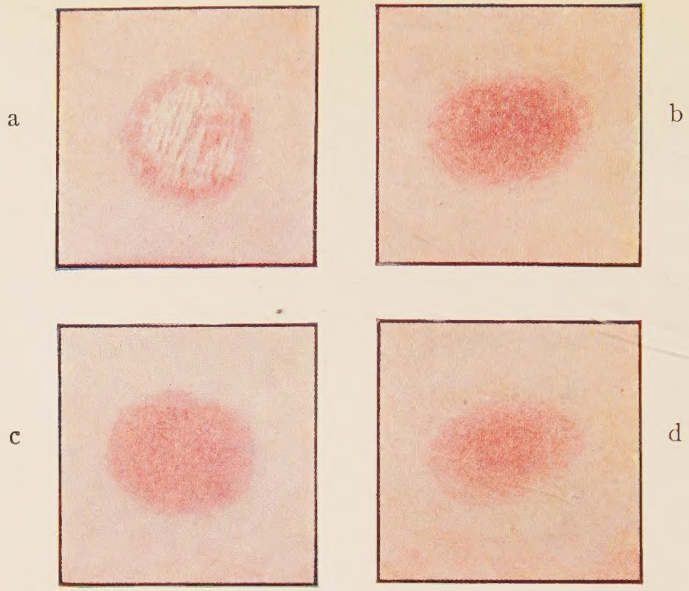


FIG. I.—Shows four typical positive Schick reactions of varying degrees of intensity forty-eight hours after test: (a) is a strongly positive reaction, with vesiculation of the surface layers of the epithelium, which is seen occasionally in individuals who have practically no antitoxin; (b) and (c) are positive reactions; (d) a moderately positive reaction. (Zingher, "American Journal of Diseases of Children," April, 1916.)

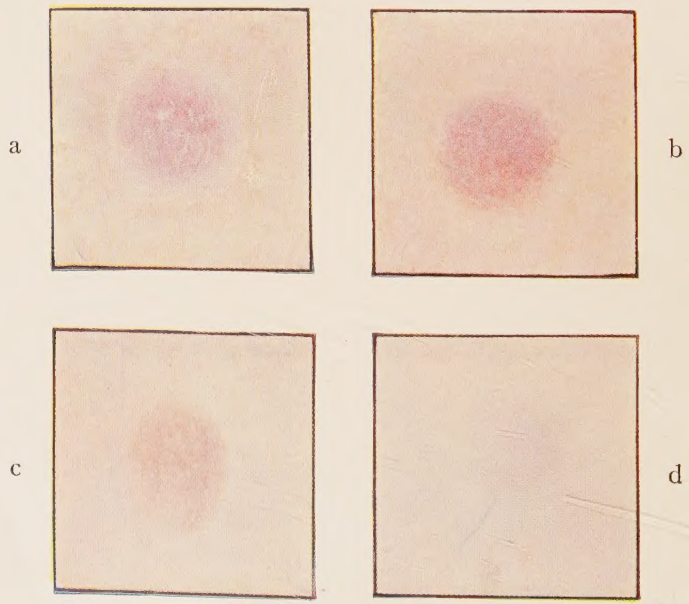
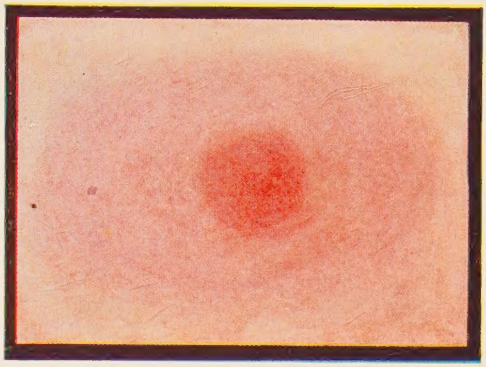
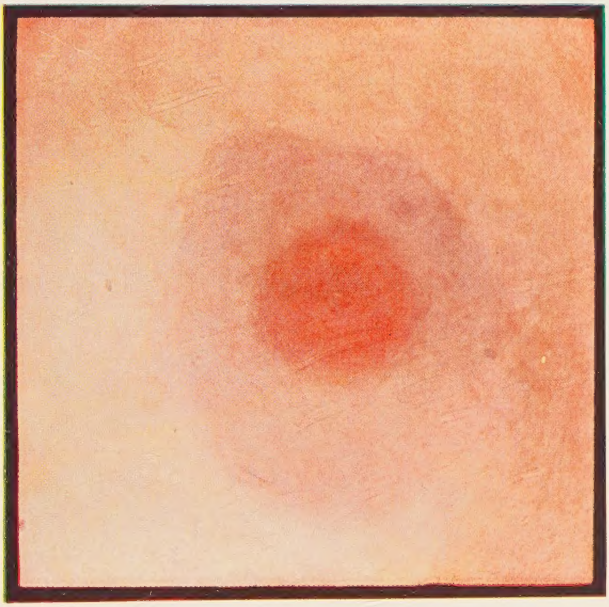


FIG. II.—Shows a fading positive Schick reaction one to four weeks after test in various stages of scaling and pigmentation: (a) shows redness, scaling, and beginning pigmentation after one week; (b) and (c) pigmentation after two and three weeks; (d) faint pigmentation after four weeks. (Zingher, "American Journal of Diseases of Children," April, 1916.)

a



b



c

FIG. III.—Shows two pseudoreactions forty-eight hours after test, and a combined reaction: (a) mild; (b) marked; (c) a combined positive and pseudoreaction. (Zingher, "American Journal of Diseases of Children," April, 1916.)

HEALTH SUPERVISION AND MEDICAL INSPECTION OF SCHOOLS

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INTRODUCTION

To meet the recognized need of a thoroughly practical, comprehensive program of health supervision in schools this book has been prepared.

Modern school health work, developed along sound principles and procedures of health and education, has availed itself of true progress in both fields and has added much to the traditional program of medical inspection.

The major emphasis is now given to the promotion of health, but the work of the physician finds its important place in the enlarged program of health service. Health supervision may be briefly defined, then, as the program of health service in which school, home and community unite their efforts to insure to every child in school that fullness of health and healthful conditions which are favorable to the best growth, development, and education of which the child is capable.

The fundamental aims of health supervision are:

1. To understand the school child thoroughly; and to help him to realize the best health and development of which he is capable.
2. To protect the pupil against contracting disease from any other child during this period; and to prevent his conveying disease to any other pupil.
3. To discover and call to the parent's attention any existing health defects, more especially those of a remediable nature, and to inspire and assist the parent to provide suitable remedial treatment.
4. To enlist cooperation of all existing agencies and all available influences for the correction of defects of school children and teachers.
5. To provide special and optimum conditions for certain handicapped children who would be at a disadvantage otherwise and to furnish exceptionally satisfactory supervision for them.
6. To provide suitable and healthful surroundings and conditions for the child in school.
7. To teach the pupil how to lead a life of health always; and if defective, to teach him also as far as possible, how to escape the handicap of infirmity.
8. To furnish technical information and guidance for all those who contribute in any way to school health service.

With these purposes in mind, this book will cover certain phases of Health Supervision of School Children and will omit certain others which are discussed in other writings of the authors.

Hence, the physical and mental health of the pupils will be discussed, together with the necessary procedures to determine whether the child is healthy or not. For the physician this will mean diagnosis of disease. For

the teacher the field is "health diagnosis" and for the nurse an intermediate task is involved; more advanced than that of the teacher, and working with both physician and teacher in the space between the two. All three cooperate in a very definite plan conceived to make the wisest and most effective use of the physician's time.

Methods of examination will be discussed. Various standards and responsibilities of schools and school authorities relative to the health of pupils will be linked with the provisions to be made in schools for the correction of ill health and defects of pupils.

Much emphasis will be given to the procedures in the school and by the school in relation to pupils, homes, health authorities, and the community to bring about the best obtainable treatment and correction of health defects. Interest must include health of teachers, especially the examination, supervision and health care of this important group.

On the other hand, the space in this volume will not permit the treatment of ventilation from the standpoint of the sanitary engineer. This subject will be considered in connection with the general health plan. Nor will health education be discussed here in detail.

In the senior author's forthcoming book, much ground is systematically covered in hygiene of instruction and school management, health instruction and training of pupils, and the activities of physical education. Therefore, in this present volume the purpose is to consider principally the special aspects of these topics which relate (1) to the protection and promotion of the health of school children, teachers, and all employees of a school system; (2) to the detection and correction of health defects of pupils; (3) to minimizing as far as possible the limitations of handicapped children and assuring such pupils the best possible social and economic status for the future.

The authors are deeply grateful to many persons and institutions for much basic information and material which have come from many scattered sources on this continent and to a less extent from Europe. Because of such cooperation, it has been possible for the authors to construct a book which embodies representative beliefs and practices in health supervision of schools. Among those to whom the authors are especially grateful for encouragement and assistance of various kinds are Dr. Louis M. Terman; Dr. L. S. Hollingworth; Dr. Bird T. Baldwin; Dr. Abraham Zingher; Dr. Charles H. Keene; Mr. Frank Irving Cooper, Mr. John Ritchie and the Frank Irving Cooper Corporation; Mr. Charles A. Smith; Mr. William C. Bruce and the American School Board Journal; Professor Patty S. Hill; Professor Helen T. Woolley; Dr. Bess V. Cunningham; Miss Emma Dolfinger; Dr. Louis I. Harris; Dr. J. L. Blumenthal; Dr. Edward L. Creedon; Dr. G. H. Watson; Mr. G. Chatfield; Miss Margaret Cuthbert; Miss Emma Johnstone and the Massachusetts Bureau of Labor and Industries; Mr. Howard W. Nudd, Mrs. Marion Curtis Kinney, and the Public Education Association; the Research Division of the National Education Association; the various divisions of the American Child Health Association; the National Committee for the Prevention of Blindness; the Eyesight Conservation Council of America; the National Tuberculosis Association; Dr. George H.

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No attempt has been made to list the individuals and societies in order of value of contribution. It is possible that some names have been omitted unintentionally.

It may be stated safely that there are very few health-promoting organizations or school systems in this country which have not in some way contributed directly or indirectly to this book; the same may be said for the authorities in the special field covered by this book. Without such generous coöperation, this book would not have been possible.

Thomas D. Wood.
Hugh Grant Rowell.

Teachers College,
Columbia University,
New York, N. Y.
February, 1927

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HEALTH SUPERVISION AND MEDICAL INSPECTION OF SCHOOLS

CHAPTER I

HISTORY OF SCHOOL HEALTH SUPERVISION

School health supervision, historically, is a nineteenth century Old World development. This chapter proposes to mention only a few outstanding events in the growth of this work up to its present status. A table is provided (page 19) for those who desire a more complete historical statement. Authorities differ on certain dates, varying several years at times.

THE EARLY PERIOD—1833 TO 1874

France was the first nation to undertake school health work. In 1833 the school authorities were made responsible for sanitary conditions of the school premises and for supervision of the health of the children. The following year there was a school doctor for each boys' school in Paris.

The term "school physician" was first used in Sweden in 1868, when medical officers in the modern sense of the word were placed on the staff of each school.

This early period was characterized by the recognition of the school as a possible hotbed for the spread of infection. Sentiment was growing toward expecting the public and the individual to assume definite responsibility in preventing the spread of disease.

Local Boards of Health entirely controlled and administered the early school health work.

MODERN PERIOD—1874 TO THE PRESENT

This period includes the majority of the really important advances in school health supervision. Control of contagious disease was continued and extended but discovery of physical defects and improvement of the child's general physical condition also received constantly increasing attention. Today, every effort is made toward forestalling disease, and this attitude, plus the present practice of teaching the child how to live rightly and healthfully, makes the modern period, in its latest conception, truly a period of positive and constructive promotion as well as of preventive medicine.

Only the outstanding plans or the beginning of the work of medical inspection in a few of the countries will be considered here since the table (page 19) may be consulted for additional information.

The new era began in 1874 when the first system of Medical Inspection, as we now understand the term, was established in Brussels. Physicians were appointed, who examined each school three times a month. The first work of school dentists and oculists was also done in Brussels.

Wiesbaden, in 1896, developed a very definite working plan, and on it many other cities have modelled their efforts. The German system, as typified by Wiesbaden, consisted of physical examinations; inspection of school premises and class rooms; individual examination of selected pupils; physical examination of each child before entering school and in the fourth, sixth, and eighth years of the course. Very complete individual records were kept of each child and a definite follow-up system was used, beginning with notification of parents of defects discovered. The Paris Plan in 1911 and 1913, although following the start made in Wiesbaden, was more highly organized and represented very definite progress.

The first school nurses, as we now consider them, began their work in Great Britain in 1901, thus preceding the Paris Plan. Interest in the inadequacy of the British school medical inspection had been aroused through the rejection of a large number of recruits, declared unfit to take part in the Boer War.

The beginning of school health work in Canada was made in Montreal in 1904, following a two years' campaign by the Montreal Woman's Club.

The Paris Plan of 1911, mentioned previously as being based on the German scheme, was carried out by a corps of two hundred ten physicians selected by competitive examination. One thousand children were assigned to each doctor. At least two visits per month were made to each school, at which time the premises were carefully examined; each class room visited and certain children selected for study. These children were chosen by the physician; referred by the teacher; or had been absent from school for an unknown cause. Records were kept of each child throughout his school career. Each child was given a thorough examination on entry. Height and weight were taken every six months. Where the work was less complete, detection of contagious disease formed a large part of the work. Parents were notified of defects or disease and were urged to secure treatment.

New South Wales in 1914 laid definite stress on the coöperation of teachers in health supervision and this represents the most modern step in advance.

HISTORY OF SCHOOL HEALTH WORK IN UNITED STATES

Work of this type in the United States is confined entirely to the Modern Period. The beginning was made in Boston in 1894 following a series of epidemics among school children and was at first directed to the discovery of contagious disease. Fifty physicians were employed. Some credit Samuel Durgin with having begun pioneer school health work in Boston in 1889.

Chicago began health work in schools in 1895; New York, in 1897; Philadelphia, in 1898.

The first state law relating to medical inspection was passed in Connecticut in 1899 and this required the teachers to make a test of the eyesight of each pupil every three years.

The first school nurses were employed in New York in 1902.

Eye, ear and throat examinations were made compulsory in Vermont in 1904. Two years later Massachusetts adopted a similar law requiring vision and hearing tests.

The first health league was organized in the New York schools in 1911 to enable pupils to participate actively in the school health program. Two years later the first health center was founded in an effort to coordinate all health activities in a given district.

The formation, in 1918, of the Child Health Organization of America, illustrates the influence of voluntary national group effort upon the health care of children in the schools.

The defects discovered in drafted men in the World War and the defects discovered in surveys of rural and urban school children in recent years have revealed the need of more vigorous campaigns, and the present year marks the peak of public interest to date in health plans for the preventive and constructive type.

STATUS OF CHILD HEALTH WORK IN SMALL CITIES

Palmer[1] reported the following impressions of the "status of child health in this cross section of the country:"

"(*A*) Everywhere there is a budding consciousness of a community responsibility for the health of childhood, yet after all practice is trailing along twenty years behind existing knowledge.

"(*B*) Cities are wasting money by not asking more use of technically trained personnel for a technical job.

"(*C*) The neglect of human bookkeeping is distressing. One cannot imagine a business concern conducted with so little regard for records.

"(*D*) There is not enough 'get together' spirit. For the best interests of childhood, business associations, social clubs, welfare associations, and public agencies should bend every effort to cultivate mutual acquaintance, respect, confidence and support.

"(*E*) Mushroom growth of health promoting activities should give way to a definite plan of action."

Chronological Table of High Points in the History of Health Supervision and Medical Inspection in Schools

The beginning of school hygiene is credited to the schools of Hellas because of the splendid natural education of the child's body which formed part of the school programs.

[1] "A Preliminary Report of a Survey of Child Health Activities in 80 Cities," presented before the annual meeting of the American Child Health Association, Kansas City, Missouri, Oct. 14–16, 1924. The complete report of this survey is available under the title, "A Health Survey of 86 Cities," published by the Research Division, American Child Health Association, 370 Seventh Avenue, New York, N. Y., 1925.

A century later, Comenius seemed fully aware of what is now called "educational hygiene." Toward the end of the seventeenth century, John Locke, in his "Thoughts Concerning Education," laid down laws for physical training. Locke was a physician, pedagogue, and child psychologist. Rousseau contributed to the field. Basedow, about the same time, and Gutsmiths, both exerted their influence for the betterment of physical education. In Austria, Johann Peter Frank studied school fittings and sanitation. In the early eighteen hundreds, Peter Hendrik Ling founded the Swedish system of physical education.

From 1833 the progress of school health programs throughout the world may be traced by the high points stated below:

1830–1840. Sweden—School doctors appointed for certain training colleges.

1833. France—school authorities made legally responsible for sanitary conditions of school premises and for supervising the health of the children. In 1783 such a plan had been brought before the National Convention but was not carried into effect because of the revolution.

1834. France—A school doctor provided for each boys' school in Paris.

1836. Dr. Karl Lorinser was the first physician to study school hygiene thoroughly.

1837. France—A royal ordinance confirmed the law of 1833.

1842. France—Governmental decrees directed that all public schools should be inspected regularly by a physician. Dr. Seguin contributed a remarkable study of the education of idiots.

1843. France—School inspection extended to girls' schools.

1848. Great Britain—In Wales a government report drew attention to school lighting and ventilation. In Abersychan a medical officer controlled school attendance.

1859. Finland—Regulations for construction and ventilation of school buildings.

1863. Sweden—Physicians examined pupils for exemption from gymnasium work.

1865. Norway—School commission brought school hygiene before the general public.

1866. Germany—Hermann Cohn studied the eyesight of ten thousand children in Breslau.

1867. Germany—Vision tests given in Dresden schools.

1868. Sweden—The term "school physician" first used in its modern sense. Medical officers placed on the staff of each large secondary school.

1869. Germany—Virchow was the originator of the modern movement for the hygiene and medical inspection of school children. His interest was a result of Cohn's study.

1871. Russia—Provision made for medical inspection—largely in the secondary and higher schools.

1872. Great Britain—In Scotland, the Education Act established regulations for the site, construction, air-space and floor-space of schools.

1873. Austria—Effective legislation for the first time covered inspection in elementary schools. A school physician was employed regularly.

1874. Belgium—Brussels is credited with establishing the first medical inspection system in the full modern sense of the term. School physicians were appointed and schools were inspected three times a month. The first work of school dentists and oculists was done here.

1875. United States—Bowditch in Boston studied the height and weight of twenty-five thousand school children.

1877. Belgium—Complete dental service established by M. Maurice Bon.

1878. Sweden—An examination of general health was held at the beginning of each term and a health committee was appointed to each school.

1879. France—Modern medical inspection organized in Paris.
Russia—Sklifosovsky examined children's teeth.

1881. Denmark—Hertel of Copenhagen began studies of the health of school children.

1882. Denmark—Researches into the health of thirty thousand school children were instituted.
Egypt—The first school physician appointed in Cairo. The system has continued ever since.
Finland—Rabinowitz studied the teeth of students of the College of Finland and of private schools in Winberg.

1883. Germany—Kelynack states that Frankfort-on-the-Main appointed a school doctor. Ware confirms this.

1884. Sweden—A Royal Swedish Commission appointed to investigate health conditions in schools. Professor Axel Key made studies of the health of school children.

1885. Hungary—The Act of 1885 established the office of school physician.
Norway—School physician in a few localities.

1886. France—Education Act established the legal position of medical inspectors. Medical and sanitary inspection made obligatory for all schools.

1887. Great Britain—First school nurse appointed in England.
Hungary—A number of physicians with specific duties were appointed for secondary schools.

1888. Germany—Kelynack states that Breslau appointed a school physician. Strassburg dental clinic opened by Professor Dr. Jessen. Planned for poor children—not necessarily school children.
Russia—School physician in Moscow.
South America—Chile began medical inspection. In Argentina the medical supervision of primary schools was entrusted to a School Medical Board of sixteen members. Work began in the secondary schools later under a special section of the National Board of Health. Scientific studies were made of disease control. Investigations into the physical condition of over eleven thousand children were made by the government.

1889. Germany—Frankfort-on-the-Main inaugurated the first genuine system of medical inspection.
Norway—Permissive regulations allowed the town to have school physicians if the expense could be met.

1890. Great Britain—Scotland passed the "Blind and Deaf Act." Three years before, England and Wales passed a similar act.

1891. Great Britain—Dr. W. R. Smith was appointed first school physician in London.
Norway—Medical inspection of schools obligatory.

1892. France—Communal physicians required by law to inspect all children in provincial schools.

1893. Great Britain—Dr. James Kerr was appointed in Bradford to examine absentees from school who failed to present a doctor's certificate.
Blind and Deaf Children's Act in England.

1894. Great Britain—Gardner, *loc. cit.*, states that the first school nursing was started in London by Miss Amy Hughes, then Supt. of Queen's Nurses in Bloomsbury Square. Dock and Stewart date this 1891.
United States—A regular system of medical inspection established in Boston as a result of a series of epidemics among school children. This statement is disputed by Mangold, who says the first medical examinations were in Philadelphia—tests of vision by physicians—and abandoned because of protests.

1895. Austria—Special law in Vienna.
Germany—Cohn of Breslau examined the eyesight of ten thousand school children (Hogarth).
Russia—Six school physicians in Moscow supervised seventy-two elementary schools. The Russian Ministry of Education was advised by a medical department at headquarters.
Sweden—Primary schools included in medical inspection.
United States—Chicago began school medical inspection.

1896. Denmark—Copenhagen began regular medical work in schools.
France—Complete reorganization of system of medical inspection in Paris. Local school doctor visited schools in each district every fortnight—careful examination monthly.
Germany—Wiesbaden plan begun and school doctors appointed. The child was the center of interest and his well-being the end of reform.
Mexico—The Department of Medical Inspection and Child Hygiene organized under the Director of Elementary Instruction.
Norway—The Education Act required medical inspection in all public secondary schools. Hogarth puts date at 1898.

Russia—Committee of Russian dentists in council with the Minister of the Interior advised compulsory examination of teeth.

Sweden—A committee of Swedish Dentists' Society examined eighteen thousand school children.

1897. United States—New York City appointed one hundred and thirty four school physicians.

1898. Germany—The Prussian Ministry urged the adoption of the Wiesbaden plan throughout the kingdom.

Great Britain—School Nurses' Society established in London. This was a voluntary society.

Japan—Compulsary and universal medical examination begun. Only small towns and country districts were exempt. Annual records of height, weight, chest circumference and defects were kept.

Norway—"A further law was passed instructing school physicians to attend to the fuller requirements of school hygiene, and to furnish an annual report." (Hogarth.)

Sweden—Thirteen cantons carried out school health recommendations. Some provided for systematic health inspection and general school hygiene.

Switzerland—Thirteen cantons carried out recommendation that each child have medical examination on admission to school.

United States—Philadelphia began medical inspection.

1899. Great Britain—Boer War conscriptions revealed physical unfitness. Fifty per cent of volunteers rejected for this reason. Public interest aroused in problem of national physique. Defective and Epileptic Children Act.

Roumania—Adequate legislation provided for annual inspection of pupils, supervision of school buildings and all that concerned the health of children generally.

Sweden—Stockholm—medical inspection introduced.

United States—Connecticut passed the first state law requiring teachers to test eyesight every three years.

1900. Great Britain—The London School Management Committee, during an epidemic of ring worm, employed the first school nurse—in the modern sense of the term. The system of medical inspection, however, was not adequate. (Gardner, 1900; Gulick and Ayres, 1901).

Norway—The Tuberculosis Act resulted in special attention to debilitated children. Each child had to be examined three times a year and report made on prescribed form.

1902. Canada—Montreal Women's Club began a campaign for school medical service.

Germany—In Strassburg, Jessen established the first school clinic (dental) (Burgerstein.)

Great Britain—In Scotland a commission was appointed to study the physical training programmes. Six hundred children in Edinburgh and six hundred children. in Aberdeen were examined. The report in 1903 urged medical inspection.

Italy—Beginning of public interest in the teeth of pupils in public elementary schools.

United States—Miss Wald, of the Henry Street Settlement, New York, visited England and studied their methods of school nursing. The Settlement then placed a nurse experimentally in four schools in New York. As a result of their success, the city promptly appointed twenty-five school nurses.

1903. Great Britain—A commission in England and Wales began to investigate physical training, medical inspection, and feeding for cases of malnutrition.

United States—New Jersey passed a permissive law.

1904. Australia—In New Zealand a plan for medical inspection was approved by medical and educational authorities, but no government funds were apportioned for it.

Bulgaria—Medical inspection organized.

Canada—Montreal began health work.

Great Britain—Under Miss Honnor Morten the London County Council established a staff of public health nurses.

Switzerland—Medical inspection in Zurich, also in St. Gall.
United States—Vermont required ear, eye and throat examinations.

1905. Denmark—The Tuberculosis Act resulted in excellent and uniform service for all state managed schools.
Germany—One hundred cities had five hundred and ninty-eight school doctors.
Sweden—The government appointed and paid for at least one medical officer for each secondary school. Stockholm dental clinics established.
United States—New York City inaugurated system of examination of each school child for physical defects. Medical inspectors were used.

1906. Australia—Also Tasmania and New Zealand began medical inspections aimed chiefly at prevention of contagious disease. In Tasmania, Dr. J. S. C. Elkington and Dr. P. H. Clarke directed the school inspections and anthropometric measurements.
Canada—Montreal appointed fifty school physicians.
Great Britain—Local educational authorities allowed to take steps to provide school children with meals.
Sweden—In Stockholm appropriations were made for research on schoolroom heating, ventilation, fatigue and penmanship as related to posture.
United States—Massachusetts made state medical inspection in public schools compulsory.

1907. Australia—Sydney, under Dr. R. E. Roth, and Newcastle, under Dr. May Harris, began medical inspection of state schools. This was the first work in New South Wales.
Canada—Halifax and Vancouver appointed school physicians.
Great Britain—Education Act made medical inspection universal and compulsory in England, Wales and Scotland (1908). The act required compulsory medical inspection, and made educational authorities responsible for this inspection. It was interpreted by the central board of education as an attempt to conserve health—both physical and mental. Pioneer school clinics in Brighton, Cambridge and Woolwich, 1908. Plan issued by Board of Education.
Switzerland—Medical inspection in Lucerne.
United States—Ninety cities had medical inspection. American Association of School Hygiene organized.

1908. Canada—Two trained nurses of the Victorian Order of Nurses were engaged by the Montreal School Board.
France—Up to 1908 an existing law prohibited a dentist from going within the precincts of a school. After a circular from the Minister of Public Instruction, 1908, dental service was organized in normal schools and boarding schools.
Germany—Four hundred cities had fifteen hundred school doctors. There was a wide variation in thoroughness of service all over the Empire. The Minister of Culture was in control.
Great Britain—In Scotland school boards were expected to institute medical inspection, and could be compelled to do so.
Switzerland—Medical inspection in Geneva.

1909. Austria—In Berndorff the first dental clinic in Austria was provided in elementary schools by M. Arthur Krupp.
Canada—Ontario and Manitoba passed permissive acts. Winnipeg began work at once.
Denmark—School nursing, chiefly to combat pediculosis.
Great Britain—About three hundred and seven districts had complied with the Education Act of 1907.

1910. Canada—British Columbia adopted medical service.
Denmark—Danish Society for the Care of Children's Teeth established.
Great Britain—Journal of School Hygiene published.
United States—Three hundred and thirty-seven cities had medical inspection (Russell Sage Foundation). One thousand one hundred and ninety-four

school doctors, three hundred and seventy-one nurses, and forty-eight school dentists.

1911. Australia—In Queensland the first dental officer was appointed to the staff of the school medical officer.

Austria—In Hutteldorff, the first student dental clinic was started. The Austrian Society for the Promotion of School Dental Hygiene was formed with headquarters at Vienna.

Canada—Dental Inspector appointed on the Medical Inspection staff of the Toronto Board of Education. A public clinic was opened.

France—Beginning of Paris plan.

Mexico—School canteens opened.

Norway—Three cities had clinics.

United States—Nineteen states provided for school medical inspection. First Health League founded in New York schools. Dr. Leonard Ayres found that four hundred and forty three out of one thousand and forty-six school systems had medical inspection (Final Report Russell Sage Foundation).

1912. Denmark—Dental clinics in five towns.

Spain—Two cities had dental inspection.

1913. Canada—Legislation in Ontario, Alberta and Manitoba, and some work done in all of the provinces.

Denmark—No regular system of medical inspection nor legislation providing for it.

France—The Paris plan was a well-developed system.

Germany—Only two cities had school nurses—Charlottenburg and Stuttgart.

Great Britain—The Education Act provided for a physical examination of the children on entering school, and three times subsequently.

Mexico—Work organized fully in Chihuahua, and partly in Guanajuato and San Luis Potosi.

Switzerland—Medical examination of school children recommended but not enforced. Thirteen cantons have it. Some cities have school doctors.

United States—International Congress of School Hygiene at Buffalo. The first health center founded in New York City.

1914. Beginning of the World War. Because of the War as such and because of the economic readjustments which followed it, the period from 1914 to 1926 may be considered one of atypical progress and of undetermined significance in school health work, except that the poor condition (mental and physical) of recruits served as an impetus to increasing interest in more comprehensive public health programs.

1915. Mexico—Dr. Rafael Carillo modified Mexican school hygiene service after a trip of inspection and observation of the plans used in United States. The society of school doctors ceased to exist.

1917. Mexico—Dr. Carillo's work handicapped by motives of economy. 1919–1920 service reduced still further.

Canada—Toronto transferred control of school medical, dental and nursing service to Board of Health.

1919. Canada—Provincial Division of School Medical Inspection established in Ontario under Board of Education. 1924 this was transferred to Board of Health.

1921. Belgium—Royal Decree of March 25, 1921 outlined scope of medical inspection. Ministerial Circular of May 9, 1921 showed model health card to be used for every elementary school pupil.

1922. Mexico—Two services of school hygiene—Public Education Department and Public Health Department—sought control of school hygiene. January 1922, first Child Mexican Congress.

1922. Switzerland—Switzerland first country to inaugurate government insurance of school children. Portugal is said to be considering a similar plan.

1922–1925. Canada—British Columbia—compulsary medical inspection by schools except in rural districts where work was under provincial Department of Health. The follow-up was carried on by nurses.

Alberta—school medical inspection under local direction.
Calgary and Edmonton had excellent programs—rural work by nurses.
Saskatchewan used a system similar to Alberta except that she emphasized education and sanitary supervision. Definite qualifications were required for positions in school hygiene.
Manitoba—similar to Alberta, for large cities. Community nurse used. Winnipeg had splendid program. New Brunswick, under the Department of Public Health had school medical officers, but little follow up work.
Nova Scotia—Halifax had good program. Public health nurses used for rural work.
Prince Edward Island—beginning of Canadian Red Cross.
Ontario—thorough and up-to-date medical inspection program, including use of nurse as inspector (examiner to be physician.)

1923. Austria—School physicians required to inspect school buildings twice a year, to advise school principals on school hygiene and to hold office hours and consultations with parents and teachers. Class instruction in hygiene is given. School physicians not allowed to treat pupils.

Great Britain—Highly organized program covering all branches of school health supervision. Three examinations of each child during school career. Full-time and part-time medical officers, school nurses.

Switzerland—Full-time physicians in Zurich, Berne, Basle, Geneva, St. Gall, Lucerne (communal doctor) and Lausanne. Part-time doctors in large communes. In most Swiss schools medical inspection is obligatory for new pupils only. Nurses assist doctors and visit homes. "Generalized" public health nurses in small districts.

1924. Denmark—Medical inspectors and nurses in all municipal schools. School nurses make home visits. School physician can insist that child be sent to public clinic if home treatment is inadequate.

France—The Minister of Public Instruction urged greater attention to open air schools, school lunch rooms and similar activities. Bill for compulsary medical inspection pending.

Russia—April 15–19, 1924 in Moscow, first of all the Soviet Republics, Congress on Physical Education. Standards worked out according to age, sex and occupation. Plans for training instructors and physicians. Physicians' study encouraged by scholarships and short courses.

1925. Germany—Most government measures dealt with school premises only. In Prussia, school doctors were provided in larger towns for permanent medical supervision of school children. Such provision was rare in smaller cities.

Great Britain—Each child was examined on admission to school and at the age of eight and twelve years. Local authorities to arrange for follow-up, detection and prevention of uncleanliness, and treatment of minor ailments, defects of eyes and teeth, enlarged tonsils and adenoids. Medical inspection provided for nursery schools, elementary and secondary schools.

United States—23 states and District of Columbia have mandatory laws for medical inspection; other states have modified mandatory, or permissive laws. In still other states the law is not specific or there is no law regarding medical inspection.

1926. Great Britain—Plan for insurance against absence from school for illness or accident was proposed.

South America—Argentina plans to have 75 school health visitors, one for each 3,000 pupils. Dental and medical clinics exist. There are also courses for teachers of backward children. The "visitors" are teachers who are graduates of a two year course. These "visitors" give health lectures as part of their duties.

CHAPTER II

DEVELOPMENT AND PRESENT STATUS OF LEGISLATION AFFECTING HEALTH SUPERVISION IN SCHOOLS

In 1899 Connecticut passed the first *state* law providing for school medical inspection. Teachers were required to make tests of the sight and hearing of their pupils. Previous to this, such matters were of local interest and action. Other states soon followed the example of Connecticut and today an attempt is being made to correlate, by broad comprehensive laws, the different parts of the whole field of school health supervision.

Under state direction, the responsibility for the program of school health supervision is placed in various departments, commonly in the Department of Education, the Department of Health, or as a joint responsibility in both of these departments.

As yet, states have been slow in providing for coordination between the medical service or supervision, the physical education, and health education programs. Such a step is necessary for the proper functioning of any program of health supervision.

The ideal type of law for any state must depend on the conditions under which it will be carried out. Hence, whether it is to be mandatory or permissive, or what official state department shall care for the medical inspection, is of secondary importance, provided the duties of the health service are performed efficiently.

A definite law should exist in every state. An ideal law would include the following provisions:

1. Coördination of health service and supervision of health education and physical education programs. Some specified state department or departments should be made responsible for the administration of this law.

2. Constant vigilance against contagious and infectious diseases and suitable provision for the exclusion from school of pupils presenting suspicious signs of recognized importance. At the same time definite regulations should secure effective effort to insure the return to school of each pupil, after an illness, at the earliest possible moment consistent with the safety and welfare of the individual child and the school as a whole.

3. The frequency and extent of the health and physical examinations should be made clear, and the person or persons who may make any or all parts of such examinations should be specified. Parents should have written notice of physical defects discovered at these examinations.

Experience has shown that:

1. The best law is mandatory in general requirements which make provision for health service for all children; but

2. The law should be permissive or advisory with reference to local measures and machinery which insure administration of the law by means which will be acceptable to individual communities.
3. The law must be flexible enough to provide for variations which seem desirable to different communities, since rural communities must provide health service in a different manner from cities. Examples of the need of flexibility of the law are seen in the following:

(*a*) The teacher is capable of making simple or preliminary tests of sight and hearing and of determining by inspection whether or not a child seems to be in normal health. When possible she will send the doubtful child to the school nurse or physician or other designated authority for a definite ruling. Granting that the final opinion on matters of health should be that of a physician whenever possible, it is practical and necessary to give greater freedom and authorization for administration of health laws to teachers in rural districts where physicians or nurses are not provided or available.

(*b*) Health examinations and inspection must always be made by the best available person or persons. In different school systems this responsibility will be assumed by the school physician, school nurse, principal, classroom teacher; depending on which persons are best qualified for such duties.

In the administration of school health supervision programs, the following *should not be permitted:*

1. Neglect on the part of the parent or guardian to provide suitable medical attention and thereby delay the return to school of a child with an infectious or contagious disease, who has been excluded for the period of communicability of the disease, and who must have a physician's certificate to permit return to school. Such families may be brought before the courts under the authority conferred upon the schools by the compulsory attendance acts.
2. Health or physical examinations less than the minimum requirement; and this last should mean, as comprehensive an examination as can be made in compliance with legal regulations relating to the presence or removal of clothing. When legal sanction and public opinion permit, health examinations should be made with clothing removed.
3. Failure to notify parents of physical defects discovered.
4. Failure to require all school employees to submit to physical (health) examinations by a qualified official or private physicians of their own choice, in order to determine:

(*a*) Their fitness to fulfill the duties for which the school expects to employ such persons.

(*b*) Whether they have contagious or infectious diseases, especially in epidemics.

5. Lack of provision for health examinations because no physician is easily available. Such examinations must be made always by the best available person. Failure to make some kind of examination is inexcusable.

6. The attendance in school of any child who for any reason is a menace to the health of the rest of the children.

It must be admitted that:

1. Laws are useless unless obeyed.
2. Local or even state officials too frequently have neglected to carry out the health program required by school health laws. The blame is largely local, since state officials are chiefly advisory in function and rarely can force local authorities to action, except in important emergencies of more than local concern.

Two representative laws will be quoted—(I) California; (II) Virginia.

I. THE CALIFORNIA LAW

Summarized, the California Law provides as follows:

1. For proper health supervision of pupils and school buildings under the direction of the boards of education; such examination to be made by the best available persons. Such persons require California licenses issued by the state department of education.

2. School boards may make such rules as seem wise for governing the health examinations and inspections, except that a parent may exempt his child from such examinations upon filing yearly a written statement that he will not consent to examination of the child. In cases suspected of contagious or infectious disease, such children may be sent home and not permitted to return until the school authorities are satisfied that danger of contagion has ceased to exist. A written report must be sent to each parent urging correction of any physical defects discovered during health examinations.

3. The "physical inspector" is expected to note "any defects in plumbing, lighting, heating, or other defects" in schoolbuildings which might make them unfit for proper housing of the children and if, within 15 days, the local school board does not act upon his written report, he must report the matter to the county superintendent of schools.

4. Adjoining districts may combine for this service.

The California Physical Education Act provides for:

(*a*) Suitable courses in physical education for all children except those excused for physical disability, or regularly enrolled (for military training) in high school cadet companies.

(*b*) The aim of these courses and the time to be given to them is prescribed.

(*c*) Special instructors may be employed.

(*d*) State normal schools shall provide courses in physical education and shall make the completion of such courses a requirement for graduation.

5. The state board of education was empowered to appoint a supervisor, establish necessary rules and regulations and publish a manual for guidance of teachers in public schools of the state. The qualifications demanded in the supervisor are outlined.

6. Provision is made for meeting the expense of the act.

Comment. The California Law meets the ideal requirements by statute or implication except in the matter of formal correlation of the health inspection and physical education work.

II. THE VIRGINIA LAW, KNOWN AS THE WEST BILL FOR PHYSICAL AND HEALTH EDUCATION

Approved March 19, 1920

"Whereas, the report of the Education Commission and the investigation of the State Board of Health reveal an alarming condition of physical defects of children, particularly in the rural schools, and

"Whereas, the effective promotion of the health and normal physical development of the children requires health examination, health instruction and the conduct of wholesome physical activities, therefore,

"1. Be it enacted by the General Assembly of Virginia, That the Board of Supervisors of the several counties and the councils or other governing bodies of the several cities and towns be, and they are hereby authorized to make appropriations out of the county, city or town funds, as the case may be, to provide for the health examination and physical education of school children and the employment of school nurses, physicians and physical directors, and such appropriations shall be placed to credit of the county or city, or town school board. Previous to employment, all said nurses, physicians or physical directors shall be approved by the Health Commissioner of the Commonwealth, and the State Superintendent of Public Instruction.

"2. That an amount not exceeding one-half of the annual salary of each physical director appointed in accordance with section one of this act may be paid by the State Board of Education to the local school trustees employing such physical director, and an amount not to exceed one-half of the annual salary of each nurse or physician appointed in accordance with section one of this act may be paid by the State Board of Health to the local school trustee employing such nurse or physician.

"3. That after the first day of September 1920, all pupils, in all the public elementary and high schools of the State shall receive as part of the educational program such examinations, health instruction, and physical training as shall be prescribed by the State Board of Education and approved by the State Board of Health, in conformity with the provisions of this act."

The following statement from one of the officials engaged in carrying out this law explains the provisions:

"When the West Law was passed, its proponents knew that there were not in the rural sections of the state enough medical men to make examinations. A plan was therefore formulated to utilize the state's teachers in promoting the health and vigor of pupils and in preventing the spread of communicable disease by the following program:

"(*a*) The teachers shall be instructed in the fundamentals of safe-guarding the health of their pupils by securing healthful environment, and by inculcating health habits.

"(*b*) The pupil shall receive an annual health inspection to determine his physical fitness.

"(*c*) Any physical defects thus brought to light shall be corrected; and, since the logical persons to encourage corrections are the public health nurses, it is proper that the employment of such auxiliaries to education should be aided by means of financial assistance to counties employing them.

"(*d*) After the children have had their physical defects corrected, they shall be returned to school to receive health education and physical education as a part of their course of study."

A Joint Program

This program is carried out by the following means:

"(*a*) (1) Health instruction for prospective teachers at normal schools and other teacher-training institutions under the joint supervision of the State Board of Health and the State Board of Education. (2) Establishment of a correspondence course in physical inspection and school hygiene conducted by the State Board of Education and the State Board of Health.

"(*b*) Requirement of physical inspection of all pupils by the teachers, under supervision of a school nurse or health supervisor where there is one, within three weeks after the opening of the school; the individual reports of these inspections sent to the parents; tabulated reports sent by the county superintendents to the State Board of Education.

"(*c*) Promotion and supervision of public health nursing by the State Board of Health, especial emphasis being laid upon supervision of health work in the public schools until the teaching force is sufficiently organized by the State Board of Education to relieve the nurse of this duty; and the promotion of correctional work in the rural districts for the purpose of correcting the physical defects brought out by the inspection. This includes,

according to the stage of public health development in the various counties, the following: dental clinics, adenoid and tonsil clinics, eye clinics, orthopedic clinics, nutrition classes, and systematic measures for the elimination of intestinal worms.

"(*d*) Financial aid by the State Board of Health to assist counties in establishing nursing services and correctional work.

"(*e*) Supervision by the State Board of Education of: (1) Instruction in physical education of prospective teachers in normal schools and other institutions having teacher-training. (2) Physical education in the grades. (3) Financial aid to assist counties in establishing physical education directors in the schools."

The Virginia law is an example of a joint supervision plan of the State Board of Health and Board of Education. Definite correlation is made between health inspection and physical education. The simplicity and flexibility of the law are notable, as are its very definite and adequate provisions and broad powers conferred on those departments who are to administer it.

The new Iowa State law for physical education contains the phrase "including effective health supervision and health instruction," and thus provides for a broad health program. The clause, "conduct and attainment of the pupils shall be marked as in other subjects and shall form part of the requirements for promotion and graduation" has placed the teaching of health on a level equal to other parts of the school curriculum (interpreting the term "teaching of health" broadly).

State laws providing for health supervision are changed so frequently that accurate tabulation is impossible.

The Bureau of Education, Washington advocates these legislative provisions:[1]

"1. A clear and comprehensive statement of the purpose of the law and the objects of physical education.

"2. Mandatory provision for all of the items mentioned under 'scope' save where (as for medical inspection) this subject may have been covered in previous legislation.

"3. Minimum time requirement to be devoted to physical education.

"4. Provision of administrative machinery in the State department of education sufficient for the effective administration of the law. This provision should be broad and flexible. Two things are essential:

(*a*) State direction and supervision. A good plan is to have a State director of physical education, with the rank of deputy or assistant State superintendent or health supervisor. His powers and duties should not be narrowly defined.

(*b*) Sufficient financial resources to insure the effective administration of this office, either by specific appropriation or by authorizing the State department to make adequate provision for this purpose out of general school funds.

"5. There should be a carefully drawn provision authorizing and requiring the employment of supervisors and special teachers under specified conditions and in harmony with the administrative organization of the State.

[1] A Manual of Educational Legislation, Bulletin 1924, No. 36, Department of the Interior, Bureau of Education, Washington, D. C.

"6. Provision requiring the State department of education to fix qualifications of supervisors and special teachers and to issue special licenses for the same.

"7. Provision for adequate physical education in the preparation of all teachers, both for the secondary and the elementary schools. The essential requirements of this part of the teacher's education should be prescribed by the State authorities.

"8. Provision requiring that pupils be graded in physical education, as in other school subjects and exercises, and that satisfactory progress in physical education be a condition to promotion and graduation.

"9. Coordination of work included in the scope of physical education as here defined, which may have already been provided for by previous legislation, such as military drill or medical inspection, and amendment of such legislation as seems desirable for such coordination."

MUNICIPAL AUTHORITY FOR SUPERVISION OF SCHOOLS

Municipal school health supervision is conducted under various types of authority, such as:

1. The general police powers of the State, as in Chicago, Illinois. Here medical inspection for the detection of contagious diseases is provided in the schools although there is no specific enabling state legislation. In Chicago, other physical examinations than medical inspections mentioned above are made only after the written consent of the parents has been received.

2. Definite state law, as in:

(*a*) Boston, Mass., where *state* law authorizes (1) the school committee of the city of Boston to employ school nurses (Chapter 357 of the Acts of 1907, Section, k, 2, 3, 4); (2) school committees of every city and town in the commonwealth to employ school physicians for examining (*a*) school children both in school and for working certificates, (*b*) school employees, and (*c*) school buildings. In the city of Boston, the duties of medical inspection of children in the public schools were specifically taken over from the Board of Health by a vote of the School Committee on June 7, 1915.

(*b*) Cleveland, Ohio, where the Revised Statutes of Ohio permit the Board of Education to employ school physicians and trained nurses; the former to make examination and diagnosis of all children referred to them. An Ohio board of education may delegate such work to the district board of health, but Ohio cities usually do not do so.

(*c*) Denver, Colorado, where a state law (Section 391) provides for the testing of sight, hearing, and breathing of public school children by teacher, principal, or county superintendent. The Board of Education of Denver took the responsibility of establishing medical inspection in the schools, feeling that there were no state laws which conflicted with such action, nor any laws which specifically stated that the Board of Education might do so.

3. Definite municipal statutes or ordinances, as in:
   (*a*) Milwaukee, Wisconsin, where a Division of Medical School Inspection was created by a Municipal Ordinance (No. 281 passed December 18, 1916 by the Mayor and Common Council) and all schools in the city were placed under the School Hygiene Division of the Health Department by agreement in October, 1919.
4. Authority of the city charter, as in:
   (*a*) New York City, where the Charter placed on the Board of Health responsibility for the conservation of the health of its citizens. A New York authority states, "School medical inspection, through its control of contagious diseases and physical examination for the determination of physical defects and their cure, would come under this provision and is so considered."
5. Combination of State law and city charter, as in:
   (*a*) Kansas City, Missouri, where the general law of the state and the charter of the city turn over to the Board of Health supervision of contagious diseases and of children excluded for contagious disease, but where the department of health and physical education of the Kansas City Schools performs the rest of the school health supervision, including notification of parents in cases needing medical attention.
6. Agreement only, as in:
   (*a*) Detroit, Michigan, where the program is carried out by the Board of Health and Board of Education jointly, in very close coöperation; the Health Department having charge of all things commonly included in a school medical inspection program, and the Board of Education conducting health education work, swimming, athletics, and physical education. There is no actual legal or statutory authority for the arrangement. It is a mutual agreement between the two boards concerned.

It would be better, if both (or either) state laws and municipal ordinances placed the duties of health supervision of school children in the hands of some specific group, such as the Board of Education or the Board of Health. There are no particularly outstanding ordinances to quote, nor is any type of enabling legislation to be recommended especially. The best policy for any given city is determinable only by investigation of local needs, local desires, and present community health program. The real justification for some definite legislation is that local responsibility for carrying out a program is determined; and permanency and definite authority are assured through definite conveyance of authority to some group or groups (as mentioned above) to plan and carry out a school health program.

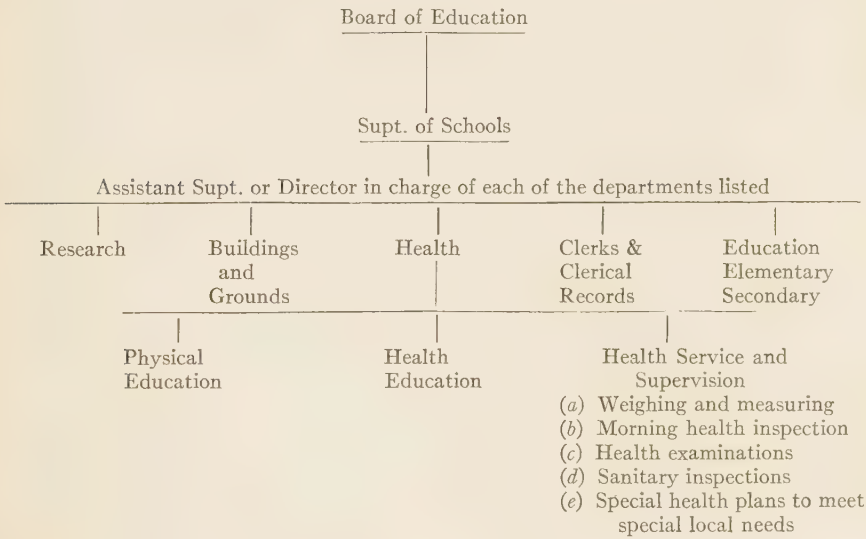
From time to time the United States Public Health Services publishes bulletins containing the existing laws covering school medical inspection. An example of these is Public Health Bulletin No. 110 "A Synopsis of The Child Hygiene Laws of the Several States Including School Medical Inspection Laws" published by the Treasury Department, United States Public Health Service, 1925. Copies may be bought from the Superintendent of Documents, Washington, D. C.

CHAPTER III

THE ORGANIZATION OF A SCHOOL SYSTEM FOR HEALTH WORK

The principle on which a school system is organized is fundamentally the same, regardless of the size of the school system and regardless of who administers the health work. Various departments exist and are directed by persons of suitable training and experience. In a large system the departments will be subdivided into districts with their own personnel; in a very small system one official will have charge of several divisions.

The following diagram illustrates a desirable organization:



The diagram is explained as follows:

The Board of Education is responsible for the administration of the school system but chooses as its field representative or executive, a Superintendent of Schools. This Superintendent can not assume responsibility for every department but must be the accountable director and coördinator for the whole system, seeing to it that general policies authorized by the Board of Education are carried out in the best manner possible. He therefore chooses specialists to supervise the different divisions of the system, and they rank as his assistants.

The Health Work is carried out most satisfactorily under a full-time Supervisor of Health. The health program has three main phases: (1)

Health Supervision or Service; (2) Health Education; (3) Physical Education—each in charge of a director. While the second and third branches must have definite programs of their own, they depend on the Health Service division for much information and many suggestions which will permit them to meet the actual needs of the children for whom they are responsible.

Coöperation between all departments of a school system is essential. To show how this may work out for health promotion, the following example is given: in a school system where the health examinations revealed a high percentage of children with unsatisfactory posture, the different departments would function as follows, all inter-departmental relationships being handled by the Assistant Superintendent or Director in charge;

1. The Health Service group would notify teachers and parents of the defects, recommend remedial measures; and sometimes advise or prescribe specific measures.

2. The Health Education program would desirably promote general habits of good posture, suggest motives, and supply information regarding posture.

3. The Physical Education program would provide exercises and games which would tend to correct the defects found. This might be through special classes for those with poor posture or through adding suitable gymnastics or other activities directly to the class exercises.

4. The Research or Medical Department would make certain studies to determine what was the apparent cause for the poor posture. Research Departments in school systems fail frequently to interest themselves sufficiently in health matters at present and this should be remedied as rapidly as possible.

5. The Department of Buildings and Grounds would (*a*) coöperate through efforts to provide suitable, and properly adjusted seats and desks for the pupils; (*b*) determine whether its provisions in this matter were being carried out; (*c*) consult with the Supervisor of Health to determine whether he had any further suggestions to offer.

THE CONTENTS OF THE HEALTH AND PHYSICAL EDUCATION PROGRAM[1]

The term "Health and Physical Education" is considered the most suitable to cover what is called "school health work."

This field includes the following phases:

[1] An example of the comprehensiveness of a school health program is found in the 1924–1925 Report of the Department of Health and Corrective Physical Education in the Los Angeles City Schools. This Department is organized and divided into the following definite Divisions. (1) Medical Inspection and Examination of Children by Physicians and Nurses; (2) Examination of Teachers; (3) Corrective Physical Education in the Senior and Junior High Schools, and Elementary Corrective Centers; (4) Nutrition; (5) Health Centers; (6) Sanitation; (7) Health Supervision of Children granted Work Permits; (8) Contagious Diseases; (9) Dental Division; (10) Conservation of Eyesight and Hearing; (11) Mental Hygiene; (12) Health Education and Research; (13) Assignments; (14) Dairy Council; (15) Travelling Health Unit, claimed to be the only one in the country; (16) R. O. T. C.; (17) Lecture Service.

I. Health service and supervision.

Health service includes the phases of health protection, health promotion, and health supervision, which should be conducted in schools and educational institutions, outside of the immediate consciousness, or primary responsibility or activity of the students themselves.

The different phases of health service, however, will provide in many points direct correlation or application with phases of health education.

Health service includes the following:

(*a*) Health and medical inspection; health examinations and follow-up work, including health care and correction of remediable defects.

1. Daily health inspection, primarily for the control and prevention of communicable diseases in schools.
2. Periodic health examinations, including monthly weighing, and at least annual general health examination.
3. Correction of remediable health defects, including not only the fitting of glasses for defective vision, the removal of diseased tonsils and adenoids, prophylatic cleaning of teeth, and corrective dental treatment; but also special measures for the correction of malnutrition, and individual gymnastics for the correction of orthopedic defects.

(*b*) Healthful environment; sanitation of the school, and favorable sanitary conditions in all environment of pupils and students in educational institutions.

1. Sanitary construction, equipment and maintenance of school buildings.
2. Ventilation, heating, lighting, and cleanliness of the school.

(*c*) Hygiene of instruction; health problems of school management and administration. This includes:

1. Arrangement of the school day; length of the school day; arrangement of subjects; length of recitation periods; study periods; length and time of school lunches.
2. Methods of teaching, recitation and study, examinations, home study, discipline, methods of grading and promotion, adjustment of the content of school subjects and the development of the child; adjustment of environment and special needs of school children.
3. Use of materials and equipment in writing and drawing, manual training and handicraft work; reading; pets, plants; general use of the building.
4. General arrangement of the school year—holidays, vacations, etc.

(*d*) Health of teachers. This includes:

1. Health examinations and standards for teachers in training, and teachers in service.
2. Health advice and supervision; teachers programs; conditions of living; facilities for recreation.

(*e*) Health and qualification of janitors and custodians.

II. Health education.

Health Education is the sum of experiences in school and elsewhere, which favorably influences habits, attitudes and knowledge, relating to individual, community, and racial health.

Conscious provision should be made for health education each year, each month, each week, and each day in the school life of the child in kindergarten, elementary school, junior high school, senior high school; in the teacher training institution, and in college.

Health education in the elementary school must be provided, as a rule, by the grade teacher. It is desirable that health education should be attended to wherever favorable opportunity comes for application of any idea or situation relating to health.

It is further desirable that a special period each day, or two or three times a week, should be provided for health instruction under this name.

To insure satisfactory health instruction in the elementary school, every grade teacher should receive adequate instruction and training for her part of the health work and the health education in the school, as a student in the teacher training institution.

Second, efficient supervision must be provided for the guidance of every grade teacher in the work done in health education.

Third, efforts of the school in health education will be largely futile unless satisfactory cooperation with reference to the establishment of desirable habits, attitudes, and knowledge, relative to health, are provided by the home, and by the community outside of the life of the child in school.

Health education in high school, normal school, and college should be considered an interdepartmental subject. Provision for promotion of health and health education in these institutions should be made by an interdepartmental committee, including typically, representatives of the following departments and forms of service:

(*a*) The administrative head of the institution, or an assistant;

(*b*) The dean, or social adviser;

(*c*) Teacher of Physical Education;

(*d*) Resident or school physician;

(*e*) Nurse;

(*f*) Teachers of biology, nutrition, social sciences, and sometimes other subjects.

There are many experiences or situations in the program of health service and health supervision, which will be valuable for supplying opportunities for phases of health education, and full advantage should be taken of such opportunities.

III. Physical education.

Physical Education is the contribution made to the complete education of the child or youth in the preparation for life by the fundamental psychomotor (big-muscle activities) including play, games, athletics, gymnastics, dancing, pantomine, dramatic activities, swimming, hiking, camping, scouting activities, and similar programs; industrial or social service activities,

such as gardening, farming, housekeeping, if these are healthful and educative.

The first aims, interests, and objectives in physical education to be recognized are those of the pupil or student.

The aims of the teachers and parents and other adults should include first, the desirable aims of the pupils and students; and second, the important adult aims to be kept in mind by teachers, parents, and other adults.

The fundamental activities of physical education are those which may be conducted out of doors. The gymnasium should always be considered, in principle, as an emergency space, in which physical training activities are carried on when the conditions of climate and weather make it impossible to conduct physical education out of doors.

The technical Physical Education Program is discussed in technical books on that subject. The Natural System of activities, based on sound psychology, anatomy, and physiology, is rapidly replacing or modifying more formal systems of physical training which have been very widely used. The natural system should give prominence to mental, social, and moral values and objectives, and uses a rational hygiene of instruction which will assure sound physiologic and hygienic conditions and results. Physical Education programs should be closely coördinated with a sound plan of health supervision. The health examinations, if efficiently carried out, will demonstrate the physical fitness of those qualified to engage in the more or less strenuous activities of the physical education program, and correspondingly provide for the selection of those who need individually adapted programs of exercise to suit individual limitations.

Pupils, in general, should be grouped according to physiological age and in relation to other motives and standards which seem appropriate.

The physical education program for girls and boys can not be the same. Regarding apparatus work, both Williams[1] and Wayman[2] state that, from the anatomic structure of girls it would seem wise that they "should not practise exercise involving use of the arms alone, that the more vigorous forms should be omitted, and that emphasis should be upon vaults, jumps and climbing with arms and legs both. Hanging and swinging exercises of the usual kind are undesirable for girls, because, in comparison with boys

(*a*) The *center of gravity of the* girl's[3] weight is lower.

(*b*) The girl's strength is less.

(*c*) The danger of a fall is greater.

(*d*) Results of a bad fall are liable to be more serious."

Exercises should be avoided which are apt to give the body a bad jar.

Among games and track and field events Wayman[4] and Ayres, Williams and Wood[5] classify the following as doubtful or to be condemned:

[1] Williams, J. F.: The Organization and Administration of Physical Education, p. 60. The Macmillan Co., 1922.

[2] Wayman, A. R.: Education Through Physical Education, pp. 202–203, Lea and Febiger, 1925.

[3] Italics are the authors.

[4] Wayman: *loc. cit.*

[5] Ayres, Williams and Wood: Healthful Schools, Houghton Mifflin & Co. 1918.

1. For pubescent or adolescent girls.

Games

Doubtful	To Be Condemned
(*a*) Basket-ball in competition (during early adolescence)	(*a*) Football
(*b*) Soccer (during early adolescence)	(*b*) Basket-ball—boys' rules
(*c*) Outdoor baseball (because indoor baseball is better adapted to girls	(*c*) Soccer—boys' rules
(*d*) Field hockey	

Track and Field Events

Doubtful	Condemned
(*a*) High jump for height	(*a*) Long runs for speed of more than 100 yards
(*b*) Broad jump for distance	(*b*) Throwing heavy weights
	(*c*) High jump for height, in competition
	(*d*) All jumps for height or distance indoors
	(*e*) High hurdles
	(*f*) Cross-country running
	(*g*) Pole vault
	(*h*) Shot-put or weight throwing
	(*i*) Broad jump for distance in competition

Swimming

Doubtful	Condemned
(*a*) Plunge longer than 30 seconds	(*a*) Swimming long distances for speed
(*b*) Under-water swimming	(*b*) Water polo
	(*c*) High diving

Miscellaneous

Doubtful	Condemned
(*a*) Hikes longer than 15 miles	(*a*) Paddling or rowing long distances, especially for speed

2. For postpubescent or mature girls.

Games

Condemned
(*a*) Football

Track and Field

Doubtful	Condemned
(*a*) High jump for height in competition (condemned by Healthful Schools)	(*a*) Long runs for speed
(*b*) Broad jump for distance (disagreement between the two authorities quoted)	(*b*) Long walks for speed
(*c*) Weight throwing (Healthful Schools)	(*c*) High jump indoors for height
(*d*) Running more than 100 yards in competition (Healthful Schools)	(*d*) Broad jump for distance especially indoors (Healthful Schools condemns broad jump)
	(*e*) Pole vault (Healthful Schools)

Swimming

Doubtful	Condemned
(*a*) Under water swimming	(*a*) Long distance for speed
(*b*) High diving	(*b*) Water polo (men's rules)

Individual work. Certain individuals should not participate in the regular physical education program but should be assigned to the type of work they need. Such persons may be (adapted from Wayman, *loc. cit.*, page 150):

1. Normal but with poor posture;
2. Normal but with poor feet;
3. Girls with some menstrual disturbance;
4. Cardiac cases;
5. Extremely overweight or extremely underweight;
6. Extremely nervous;
7. Constipated;
8. Postoperative or convalescent cases;
9. Curvature cases;
10. Ptosis cases;
11. Cases of chronic fatigue;
12. Combinations of several of these;
13. Individuals who gain more from individual attention in a small group.

Wayman divides the group into:

1. Those who have slight functional defects and who can be assigned to regular physical education classes, but who are given special advice and exercise to be taken at home.
2. Those who require more individual attention, such as
   (*A*) The remedial groups of:
      1. Individuals whose defects are more functional and medical in nature, such as (*a*) Malposture, (*b*) Weak feet or falling arches, (*c*) Constipation, (*d*) Girls with painful menstruation, (*e*) Ptosis, (*f*) Fatigue.
      2. Temporary or transient cases: (*a*) Menstrual period in girls, (*b*) Fatigue, (*c*) Colds, (*d*) Sprains and cuts, (*e*) Any temporary ailment permitting some exercise.

   (*B*) The corrective group, with (1) Extreme kyphosis, (2) Extreme lordosis, (3) Severe menstrual difficulty in girls, (4) Severe constipation, (5) Scoliosis, (6) Extreme abnormalities of feet. Such cases require careful, individual attention.

Physical education in special classes for physical or mental defectives. In classes for the deaf, eyesight-conservation classes, classes for mental defectives, and other special groups a special physical education program is usually provided, and is adapted to the special needs of the individuals as a group, such as exercises for developing rhythms in classes for the deaf.

CHAPTER IV

ADMINISTRATION OF HEALTH AND PHYSICAL EDUCATION IN SCHOOLS

Administration of a school health department may be:

1. Under the Board of Education;

2. Jointly under the Board of Education and the Board of Health;

3. Previously this work was said to be administered by certain Boards of Health, when the medical inspection for contagious diseases and the health examinations were provided by the Board of Health. Such a plan would now be considered a Combined System (see 2) because of the increasing scope of the school health program.

Actual practices are shown in the following data:

1. 1911.[1]

TABLE 1. ADMINISTRATION OF SYSTEMS OF MEDICAL INSPECTION IN CITIES OF UNITED STATES, BY GROUPS OF STATES

Division	Cities having systems of medical inspection	Cities having administration by Board of Health	Cities having administration by Board of Education
North Atlantic	236	58	178
South Atlantic	23	7	16
South Central	35	12	23
North Central	109	21	88
Western	40	8	32
United States	443	106	337
	100 percent	24 percent	76 percent

Percentages are the authors'.

2. 1922.[2]

TABLE 2. SUPERVISION OF HEALTH IN SCHOOLS ACCORDING TO THE POPULATION OF CITIES

Conducted	All cities		Under 10,000		10,000 to 25,000		25,000 to 50,000		50,000 to 100,000		Over 100,000	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Board of Education	237	72.7	7	53.8	126	77.3	52	75.3	29	80.5	23	51.1
Board of Health	40	12.3	3	23.1	15	9.2	8	11.6	2	5.6	12	26.7
Board of Education and Board of Health	41	12.6	2	15.4	18	11.0	6	8.7	5	13.9	10	22.2
Private Organizations	4	1.2	..	.....	2	1.2	2	2.0				
No Supervision	4	1.2	1	7.7	2	1.2	1	1.5				
Total	326	100.0	13	100.0	163	99.9	69	100.0	37	100.0	45	100.0

[1] Gulick, L. H. and Ayres, L. P.: Medical Inspection of Schools, p. 145. Survey Associates, Inc., 1913.

[2] Wood, T. D.: Health Service in City Schools, Report of the Joint Committee on Health Problems in Education, p. 4, 1922.

3. 1923. The report of the Committee on Municipal Health Department Practice of the American Public Health Association (1923) contains the statement that "School health supervision in public schools is carried out in over half the cities of over 250,000 population by the board of health; but this work is handled in over two-thirds of the smaller cities by the department of education. In seven cities both departments are more or less active in the work; and in at least twelve other cities, in which the department of education controls the work in public schools, the board of health inspects children in parochial schools."

The placement of administrative control of school health supervision is debated warmly by those who favor Board of Health direction and those who prefer Board of Education jurisdiction. In general the former group maintain that the Board of Health is the municipal and state health authority and that school health programs therefore are part of its duties. The latter prefer Board of Education control because all school matters logically come under educational authorities. The practice in all except the largest cities is now, and has been since 1911, to favor control by the school authorities in the proportion of about three to one.

Some of the arguments used, are:

Favoring Board of Health Control

1. The Board of Health is responsible for the health of the community. It is so stated in the charter of New York City, for example.
2. The machinery already existing for the conservation of health in the community may be properly extended to include new activities.
3. Another branch of the government should not duplicate social machinery already existing.
4. The Board of Health personnel may be used for several different purposes in the community, as in the case of non-specialized public health nursing service or of physicians spending part of their time in the schools and part of it on other Board of Health duties, such as in public clinics.
5. Important features of medical inspection of schools are the detection or segregation of cases of contagious disease, and the making of health examinations.
6. The school authorities should cooperate with the Board of Health and thereby assure the success of the health service, as in Detroit.
7. The Board of Health has police power not possessed by the school.

Favoring Board of Education Control

1. In educational matters, the school authorities should have full control.
2. School health supervision is distinctly educational in nature. Where not educational, it is protective, and the school should know its own needs best.

3. The control of contagious disease is not the greatest health problem in schools, nor is the actual performing of health examinations. It is always necessary for the school to assume the important educational features of the program, such as positive health promotion; adjustment of the individual and his work; exercise and play program; home contacts; and similar measures on which successful school health programs really depend.

4. Unity of control is necessary and implies Board of Education control. The employment of a full-time Supervisor or Director of Health as a school official provides the best coördination of the program. The Board of Health could only carry out part of the broad school health program in any case, and the success of their part of the program would depend on whether or not the Board of Health physicians and nurses are considered school employees for all practical purposes.

5. That the schools can provide the health service as economically as the Boards of Health, without duplication of personnel or facilities, since it would be necessary for the Boards of Health to add to their present budget and personnel to handle the new duties.

6. The linkage already existing between the school and the home is natural and most effective for the best development of the child mentally and physicially. The school health personnel helps to maintain this linkage.

7. Teacher training institutions are preparing their students in school health work and educators are capable of administering the health programs.

8. A health service must be provided for teachers and employees eventually, if not at present. In smaller systems the regular school physician will care for this.

9. The Boards of Health have new fields, such as work with pre-school children, which need developing and which will furnish any new activities needed.

10. The police powers possessed by Boards of Health make it unnecessary for them to be in full control of the school health program at all times.

Private and parochial schools. Such schools are responsible to the Board of Health for meeting the local health laws. At present Boards of Health provide medical inspection in parochial schools but not in private schools.

THE PERSONNEL

In 1923, the following staff for a city of 25,000 to 30,000 population was suggested for a school health program:[1]

[1] Health for School Children, School Health Studies No. 1, p. 10. Department of the Interior, Bureau of Education, Washington, D. C., 1923.

	Possible salary range	
	Minimum	Maximum
1 director of school health work	$4,000	$5,000
1 or 2 part-time physicians, at $1,200 to $1,500	1,200	3,000
1 supervisor of health training and instruction	2,500	3,500
1 mental hygienist and supervisor of ungraded classes	2,500	3,500
3 school nurses at $1,500 to $1,800[1]	4,500	5,400
1 part-time dentist	500	1,500
1 or 2 oral hygienists at $1,500 to $1,800	1,500	3,600
	$16,700	$25,500
Cost per pupil on basis of 5,000 pupils	3.34	5.00+
Cost per pupil on basis of 6,000 pupils	2.78+	4.20+
Other statements of service costs are found on pages 73–79.		

[1] If one of the nurses is used as a supervisor, it would be necessary to pay more than the maximum salary indicated.

This table does not include teachers of physical education, nutrition specialists, or specially trained teachers for the "special classes."

The *Supervisor or Director of Health* could function most effectively, if, as in a few cities, he ranked as an Assistant Superintendent, in charge of school health work. Desirably he would be a physician who has had special training to enable him to understand the principles and methods of education. In smaller systems, he would have actual detailed charge of some one division of his department, usually that of Health Examinations.

He functions as a coördinator between divisions of his own department, and between his department and others. While he must be responsible for the general health policy and make definite suggestions on many things, he must accept guidance from specially informed colleagues and subordinates in technical matters with which he is unfamiliar.

He should be skilled particularly in the handling of contagious diseases, orthopedic cases, and nose and throat work, with some knowledge of skin diseases, pulmonary diseases, and heart diseases, if he is to assume control of health examinations. He must be a person who is socially acceptable, preferably with some ability as a speaker.

For district supervisors, as in rural work, the following qualifications have been suggested in the New York Legislature:

"It shall be the duty of the district director of school hygiene to advise, assist, and exercise general supervision over medical inspectors, dentists and school nurses in the public schools in such school hygiene district; to keep informed as to their work and require such reports from them as he may deem necessary; to see that suitable recommendations based on the findings of the medical inspectors in their examinations of pupils are brought to the attention of their teachers and of those in parental relation to such pupils; to aid, and keep informed as to the work of, oral hygienists, nutrition workers, and other school employees engaged in health work in such schools; to inspect, and report to the proper authorities on the sanitary conditions of school buildings

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE DEPARTMENT OF EDUCATION
MEDICAL INSPECTIONS BUREAU

DUTIES OF THE SCHOOL MEDICAL INSPECTOR, TO BE PRESCRIBED BY THE BOARD OF EDUCATION OR TRUSTEE

1 To make a careful physical examination of those pupils of the district who do not present an acceptable health record within 60 days after the opening of school.

2 Unless otherwise directed, to inspect all medical reports, all requests for excuses from school attendance or from participation in school activities, and all certificates of health signed by physicians or others; and to indorse those reports, requests and certificates meeting with his approval.

3 To enter on the pupil's health records, in their appropriate places, the data obtained by physical examination, and to specify all defects for which treatment is recommended.

4 To make an intensive physical examination of and recommendations for the mentally retarded children, the undernourished children, the cardiac children, the children with postural or orthopedic defects, candidates for athletic contests and such other special cases as may be brought to his attention

5 To cooperate with family physicians, teachers, principals and nurses in recommending to parents and guardians the correction of such existing defects as in the opinion of the medical inspector may interfere with the health of children or with their progress in school.

6 To make careful physical examinations of the teachers, janitors and other employees of the school, when requested, and to report to the trustee or board of education as to their physical fitness for school work.

7 To lend every possible assistance and cooperation to physical directors, school nurses, dentists, dental hygienists and other health workers engaged in school health service in the city or district.

8 To cooperate with teachers, local health authorities and physicians in promptly recognizing and suppressing any communicable disease or condition which may appear in the school or in the community.

9 To study the medical inspection work in the district throughout the school year and to advise and assist in its administration in such manner as will best accomplish the intent of the law.

10 To give one or more lectures to the teachers in the school served by him, on school medical inspection and how teachers can contribute to the efficiency of the service.

11 To perform such other duties as the law may require or as may from time to time be directed by the trustee or board of education for the purpose of conserving the health of the children of the district or improving the sanitary condition of the buildings or grounds.

12 To refrain from practising medicine among children examined except in families regularly attended by the school medical inspector.

[OVER]

Suggested contract between boards of education or trustees and medical inspector

The undersigned, parties of the first and second part respectively, hereby mutually agree to the following terms and conditions:

In consideration of the performance of the duties of the medical inspector, as hereinafter provided, by Dr..... in school district no. ....., city or town of....., county of....., the trustee, or board of education, of said district agrees to pay the said.....the sum of $.....when such services have been rendered by said medical inspector to the satisfaction of and as required by the trustee or board of education of said district.

The services to be rendered by the medical inspector under this contract are found on the opposite side hereof and become a part of this agreement.

Signed in the presence of each other..... 192.....

.....
For board of education or trustee

.....
Medical inspector

FIG. 1.—New York State. Statement of duties of School Medical Inspector, and suggested contract. Both sides of form.

and in other ways to promote the physical welfare and health education of pupils. Whenever the board of supervisors, or in a county constituting a general health district, the district health officer thereof, shall, under any provision of law now in force or hereafter enacted, assign any public health nurse to the duties of a school nurse in any school or schools within a school hygiene district, she may be assigned to perform such duties under the direct control of the district director of school hygiene of such school hygiene district. Such district director of school hygiene shall be subject to supervision by the state medical inspector of schools."

One *part-time physician*, giving about two hours per school day throughout the school year can care for from one to five thousand children. He can give complete physical examinations to about one thousand pupils in this time. If a less comprehensive examination is desired he can care for more children. Some of his time each day will be taken in passing on cases for exclusion, if any, or return to school. The tendency is toward using the physician for consultation rather than routine work for in this way he can use his knowledge for the benefit of those who most need it. Young physicians recently graduated, are often successful in school health work because they can give the necessary amount of time and they realize that careful work in the school may assist their local professional reputation. The school should pay its physicians adequately if satisfactory service is expected.

Suggestions Given Doctors on School Health Program[1]

Suggestions to school physicians for the improvement of the health programs in schools are set forth by Dr. Florence A. Sherman, Assistant Medical Inspector of Schools for the Department. Doctor Sherman has previously presented in the Bulletin suggestions for other school officials and for parents. A school physician may aid, she states, in the following ways:

1. By being a hygienist himself in every sense of the word;
2. By embodying and radiating health;
3. By being enthusiastic in his work and so stimulating enthusiasm in nurses, teachers, parents and pupils;
4. By being interested in keeping up the normal health index in the school;
5. By outlining his health program early in the school year to parents, teachers, nurses and pupils, thus securing closer coöperation:
6. By emphasizing the importance of keeping well through the practice of daily health habits;
7. By explaining to parents the importance of early correction of defects found and the reasons why;
8. By making his physical examination early in the school year and so secure earlier corrections.
9. By interesting himself and being able to prescribe corrective exercises in special posture cases and suggestions in group exercises in order to promote the best physical development in normal children;

[1] Bulletin to the schools of the University of the State of New York, Vol. II, Nos. 7–8 Dec. 15, 1924–Jan. 1, 1925.

10. By working, in close coöperation with health authorities and all health agencies;

11. By being strictly ethical in his school work in relation with the family physician;

12. By endeavoring to give to all those under his direction the health viewpoint, presenting to them health and not disease."

A *supervisor of nurses is* usually placed in charge of the nurses. She may handle unusually difficult home contacts and special work, such as in connection with classes for defectives. *A school nurse* can care for about two thousand children. She is usually assigned twice as many.

Gardner[1] states: "In review it may be said that the duties of a school nurse are:

1. To acquire such an understanding of the development of modern health education as will make clear her own relation to it.

2. To assist the teacher by advice and counsel in the furtherance of the work of health education.

3. To assist the teacher to inaugurate and carry out a satisfactory system of routine health inspection.

4. To assist the school doctor in his periodic examination of the children, and to care for such minor dressings as may be referred to her. In case no doctor is available, to make such examinations as will enable her to bring to a physician's attention those cases requiring his services.

5. To induce parents, through her most important function of home visitor, to secure for their children as healthful conditions as individual situations will permit, and to persuade them to have the discovered defects remedied. In addition, to make clear to them the fundamental principles underlying modern health education, to the end that they may intelligently play their part in the health progress of their children."

The Ninth Yearbook of the National Society for the Study of Education[2] contains interesting statements on the history and development of school nursing by Stewart and Nutting, and a problem of the future of school nursing by Wood.

Miss Stillson[3] of the Grand Rapids, Michigan, Public Schools states that the *teacher's part in the "Screening Process"* is:

1. To give periodic preliminary tests for hearing, for visual acuity, observations for apparent Speech defects and physical abnormalities.

2. To daily look for any signs of physical disturbances (not chronic).

3. To report her findings to some one who has authority to bring the pupil in contact with the proper source for diagnosis and remedial measures.

4. To keep records of her observations and remedial measures, and report.

5. To note any case that seems to her to be mentally atypical.

6. To help children keep own height and weight and other health records, and to keep this information in such forms that it is available to school nurses, school doctors, etc.

[1] Gardner, M. S.: Public Health Nursing, Macmillan, 1924.

[2] The Nurse in Education, Part II, Ninth Yearbook, National Society for the Study of Education, University of Chicago Press, 1911.

[3] Personal Communication, Jan. 31, 1925.

7. She should have the right to send to temporary isolation any cases that she suspects of having transmissible disease.

The *intelligent teacher* is capable of recognizing symptoms as symptoms of "something." Her place is never to attempt to define the *Something*. The teacher is in no sense to replace the school nurse or school doctor. But she is in more constant contact with the child and often has opportunities to observe the child in more significant situations than does the real health authority. It should be her duty to report her observations to the one who can help the child to make the necessary contacts for diagnosis and treatment. She should be the ally, not the substitute for the health expert. The fact that teachers are not well informed as to how to detect defects is no excuse for delay in giving the teachers authority to act in that direction. If this becomes a duty, it will react for better training along these lines. Is it not one of the duties of child welfare organizers to see that information reaches the hands of the teachers?

POLICIES AND RELATIONSHIPS

Certain definite policies should be outlined, both for use within the school itself and in relation to other organizations.

1. **"Limited treatment."** This is discussed on page 52.

2. **Coöperation, not duplication.** In general this will mean that the school will conduct no clinics.

3. **Protection of the family physician.** In general, urge the parents to seek advice from their own private physician when they can afford to do so.

4. **Limited follow-up.** This is advocated because of the limited personnel in the school health department. Uncoöperative families can not expect many home visits.

5. **Contagious diseases.** All information as to the existence of contagious diseases should be given to the officials of the Board of Health.

The school nurse should never visit a house where contagious disease is suspected. Such work in any circumstances is a matter for the Board of Health. The Board of Health is expected to keep the school department informed of all reported cases of contagious disease, preferably daily.

Relationship of School and Home

Coöperation between school and home is indispensable to successful school health work. Such coöperation involves:

1. Parent and school sharing responsibility for the child rather than the entire burden being placed on either.

2. Control of communicable disease. The parent cooperates by (*a*) keeping at home, children with suspicious signs of communicable disease; (*b*) telephoning the school in such cases as early as possible to permit the school to take necessary steps for the protection of other children; (*c*) providing physicians' certificates or note from the home in explanation of absences for illness or any other cause. The school provides the parent with directions for handling such matters, either by circulars or through meetings such as are held under the auspices of the Parent-Teachers Association.

In case of exclusion for disease, the parent should secure medical attention at once and return the child to the school in suitable health as soon as possible. Careless or uncoöperative parents are liable to prosecution under the truancy laws or under laws concerning neglect of children. Nevertheless in such cases there is a distinct belief in some courts that the rights of the individual are being usurped by a public institution.

3. The presence of the parent at the health examination, so that defects may be demonstrated and discussed. Where this is not possible, the school must notify the parent in writing regarding defects discovered. Usually a nurse should call to urge correction of the defects and also to make further explanation, if desired by the parents.

4. No desire or attempt by the parent to exempt a pupil from various physical activities, or necessary protective measures, such as vaccination, except for legitimate reasons. Physicians of the better type refuse to furnish certificates for this purpose unless there is a justifiable cause.

5. Matters of the child's personal hygiene. The child is expected to come to school clean and observe personal habits which will in no way menace the health of other pupils or disgust them. Cleanliness of both body and clothing is expected.

6. In athletics, the school accepting no responsibility for injuries incurred, except possibly where definite neglect can be proved. Nevertheless the parent should have the assurance that every effort will be made to avoid disasters: (*a*) through all necessary protective measures and equipment, such as suitable uniforms and health examination of candidates for teams; (*b*) through adequate provision for first aid; (*c*) through employing experienced athletic coaches.

7. Contact with the home, made by various means: (*a*) notes and printed matter; (*b*) meetings for parents; (*c*) notification of the existence of health defects; (*d*) telephone messages from various members of the schools such as teachers, nurses, principals, doctors; (*e*) through the principal of the school either through his calling on parents or their calling on him; (*f*) in a similar manner through the classroom or other teacher, through the visiting teacher, and through the school nurse.

The Function of Voluntary or Private Agencies or Persons

In these days of large school budgets and increasing needs of school systems (because of the general attempt to make opportunity for moderate degrees of education universal), the expenditure for health work must be limited. Otherwise, the tax payer's support will be alienated and he will become hostile to health work. Furthermore, expenditure of public funds is not desirable for services which can be provided by other means. Rarely is the school system justified in offering any plan for the correction of physical defects which involves a program of treatment other than the rendering of first-aid and the simplest remedial measures, if such medical services are available elsewhere in the community.

Facilities for the treatment of disease usually come under the control of agencies outside of the school department. Thus, the Board of Health clinics, or municipal or private hospitals may provide the needed measures

for correction of health defects. Once the parent has been notified of the discovery of physical defects, the responsibility for treatment lies with the family and the community.

The social service agencies or the social service department of the hospitals will frequently assist in getting the children to the clinics. Their funds are secured partly for this purpose.

Certain cases where family conditions must be remedied are cared for by other specialized social groups of the type of the S. P. C. C. to whom the school may refer them.

Such groups as the local branches of the *Anti-tuberculosis Organizations*, *Women's clubs*, *Red Cross Chapters* and other agencies will often make possible school lunches; Mother-Craft courses; special health entertainments or health movies. Frequently private organizations provide school lunches, Mother-Craft courses, etc. as demonstration projects for a year or more, the school taking over the activity when the practical need and use of it has been demonstrated. Such demonstrations form one of the most useful services a club can render to a community.

Parent-teachers associations bring about a clearer understanding between parents and schools (1) through the development of social contacts between the two groups and (2) through arousing in the parents a healthy, intelligent spirit of cooperation in educational matters.

Business men's clubs of the type of Lions, Kiwanis, and Rotary, or fraternal organizations, whether of local origin or of national affiliation, often make possible certain health demonstrations where enthusiasm and funds are necessary. Many nutrition demonstrations are conducted under such auspices. The active interest of the business man is difficult to arouse in many matters where health is concerned but when once aroused, it makes possible many desirable programs, not otherwise attainable. The final success of a health program is in any event judged by the important business men of the community and a definite evaluation placed upon it by them.

The *churches* and their various affiliated organizations support health programs actively, and morally. Although the clergy may be asked to make pleas from the pulpit for worthy objects, such requests should not be made often. The present tendency toward special days, especially Sundays, has made it very difficult for the clergy to carry on their own programs for sermons. This should be kept in mind when favors are requested.

The *medical and dental societies* should be familiar with the health program in the schools at all times and should be expected to support a well-planned program, or to assist in building up a proper school health department. Coöperation of physicians is necessary in control of communicable disease. Family physicians can do a great deal of harm through not understanding what the school is doing or through lack of sympathy with the school's efforts. While it cannot be expected that every physician will support school health work actively, the physician should not criticize until he is sure of just what is being done. The chief difficulty occurs because the physician sees only individual cases, usually those of the school group which would be ranked as the school's failures. No physician would care to

be judged by his worst cases. The present tendency of both medical and dental groups is toward interest and support of school health work, since it has proved a valuable aid in their practices, where used intelligently.

Relationship with Hospitals[1]

There are many difficulties to be overcome before the hospital and the school health department will work in close correlation and harmony. In order that both hospital and school groups may understand the difficulties to be met in the whole relationship between schools and clinics, a frank statement of the many factors influencing the situation may be helpful. The splendid spirit of coöperation shown by both hospital and school will result, eventually, in a happy solution to this problem, over which neither school or hospital has exclusive control.

The main problem is found when the school nurse brings children to the hospital for treatment. Difficulties arise on both sides.

(*A*) Nurse's viewpoint:

1. She feels these cases are urgent and need immediate treatment which the hospital is often unable to give at a moment's notice.
2. She has difficulties in distributing the cases to their respective departments and in being with them all at once in order to answer necessary questions of the staff.
3. She often has difficulty in obtaining:
   (*a*) Sufficient information regarding the child. The hospital needs this information in order to administer correct treatment.
   (*b*) Permission of the parent, which is necessary before the physician may treat the case.

These difficulties are due to the following situations:

(*a*) Often both parents work.
(*b*) Mother may have younger children whom she cannot leave.
(*c*) Frequently parents are indifferent to the welfare of the child.
(*d*) Some parents do not speak English well.
(*e*) Others are averse to giving information.
(*f*) Frequently much time and trouble are expended in finding parents at home.
(*g*) The nurse has a tremendous amount of ground to cover and therefore cannot do any of it thoroughly.
(*h*) When the school nurse does succeed in overcoming these obstacles, it is impossible to get the personal presence of the parents at the hospital (which most hospitals require before treatment of child can be undertaken) so the child must go home untreated.

4. Sometimes the nurse must act upon her own judgment, when a case seems urgent to her and immediate school medical service is unobtainable.

[1] Rowell, H. G.: Modern Hospital, Jan., 1924.

(*B*) Hospital physician's viewpoint:

1. The nurse sometimes makes diagnoses and acts upon them, leaving openings for error.
2. A few nurses through lack of tact have offended medical practitioners, thus exposing the whole school health system to criticism and disfavor.
3. The physician cannot proceed to treat the child when he cannot find out all the necessary information regarding history, etc.
4. Often the hospital physician criticizes the school physician who sends a rather broad and indefinite diagnosis with a case. The latter does this merely to avoid confusion and clashing of opinions.
5. The tendency of the school health departments to generalize in their hygienic recommendations to children, meets with the disapproval of the hospital staff.

(*C*) Other general problems:

1. To avoid competition with private practitioners, hospital staffs are kept as small as possible, with resultant delay in cases, especially in operations.
2. Often children's appointments for tonsillectomy and similar operations must be made several months ahead of time. During the interval between diagnosis and operation, interest lags, conditions change and the child may fail to appear for operation.
3. In order to avoid duplication and subsequent confusion of health records of children, records should be individual and mutually accessible to hospital and school.

Solutions to these problems can be secured only through cooperation between the school health department and hospital; frank discussion of problems; and meeting them as well as conditions allow.

CORRECTION AND TREATMENT OF HEALTH DEFECTS

The modern school is interested in the best health of all its pupils and all its employees, and in the highest possible accomplishments in remedial measures for cases requiring treatment. To attain these ends, it is necessary and expedient that every "health facility" of the community should be made available through coöperation between the school and other health organizations, such as hospitals, social agencies, and the Board of Health. Successful education is so dependent upon the pupil's good health that almost any necessary degree of school health service can be justified on this basis alone.

What health service the school will provide depends largely:

1. Upon the needs of the pupils;

2. Upon the facilities which the community already has or can provide for cases requiring treatment.

The intelligently planned health service program will therefore include:

1. Provision for first aid treatment of some diseases (see page 52) and injuries;

2. Other types of service which are not already available in the community, and which it is practicable for the school to undertake.

Some pitfalls to be avoided are:

1. Duplication of services existing in the community.

2. Permitting persons who can afford private medical service to rely upon the school service because it is free. Private physicians criticize this practice severely. Strangely enough, many families will gladly accept free treatment from the school health department when they would refuse free treatment from other sources.

3. Invasion of the rights of individuals. When a defect has been revealed by the school health examinations, the parent is notified, the need for treatment explained, and provision made for readmission at the proper time if the child is excluded. The school is not accountable for what further may happen to the child's health, although the case may become one for other social agencies in the community, such as the Society for the Prevention of Cruelty to Children.

4. Assuming too much medical responsibility, as where treatment is given. The school, if it provides medical service at all, must furnish a service the equal of the average medical service in the community. This the school can rarely afford to provide. Furthermore, the school official who furnishes the treatment may be sued for malpractice, or practising medicine without a license if treatment is not given by a physician or under his direction. The fact that no fee is asked or accepted places the case on a favorable legal basis but much annoyance might arise from dissatisfied parents. See the New York State opinion on page 54.

5. Unwise expenditure of school funds. The school officers must determine carefully whether it is better to spend part of available funds in a treatment program. Usually the school emphasizes the positive health aspect in preference to an extensive treatment program.

In any school system, health treatment or service may be provided in any of the following situations:

1. First aid treatment where injury is slight or when the family physician can not reach the child quickly, and the child would suffer if not given relief. Such treatment is temporary only and should be given by the best available person.

2. For the sake of improving attendance, most school systems have printed home treatment directions for Pediculosis, Scabies, Ringworm, and Impetigo. This treatment is given because these diseases are excludable and because the family is not likely to seek medical advice.

3. In certain types of classes for defectives, such as Conservation of Vision Classes, where the school is willing to assume greater responsibility for the child than usual, and where definite provision for a specialist is made. This procedure is justified because such children are being educated to some degree of economic independence and because the state has authority and funds to pay part of the expenses of these classes.

4. Where treatment facilities in the community are inadequate and no other means seems possible. In such cases signed permission for treatment must be obtained from parents. Such forms are printed herewith:

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE DEPARTMENT OF EDUCATION
BUREAU OF MEDICAL INSPECTION

CONSENT OF PARENT OR GUARDIAN

To ..... *Medical Inspector, Superintendent, or Nurse:*[1]

..... *N. Y.,* .....*192*....

I hereby authorize you to take my child.....to the {dispensary[1] / hospital

to have {his[1] / her physical defects examined and treated either by surgery, medicine, or otherwise, as may be found best or necessary by those in attendance.

In presence of .....
Parent or guardian

.....
Address

.....
Residence

Such expense as may be incurred by this service must be agreed upon, and provided for, in advance.

[1] *Cancel words not applying.*

FIG. 2. New York State Consent Form. $3\frac{1}{2}'' \times 5\frac{1}{2}''$ card. A general permission for examination and treatment.

Los Angeles City Schools

HEALTH DEPARTMENT

I request treatment at the Public School Dispensary

for my { son / daughter ..... / ward

..... **Parent.**

Approved for eligibility: .....
Principal.

FIG. 3. Size $4\frac{1}{4}'' \times 6\frac{1}{4}''$. Directions for reaching the Dispensary are printed on the back of this form. Note that eligibility for clinic service is investigated. Gives "blanket" permission for treatment.

Milwaukee Health Department — Bureau of Child Hygiene

PERMISSION SLIP

TO WHOM IT MAY CONCERN:

I, the undersigned, hereby request a Health Department Nurse to give or to provide for my { son / daughter / ward ..... (Full Name)

the medical care which has been suggested as necessary by the clinic or school doctor as follows: .....

.....

.....

Date ..... *Signed* .....

School ..... *Grade* .....

FIG. 4. $3\frac{1}{4}''$ by $5''$. On this form the needed treatment is specified. "Blanket" permission is not given when the parent signs this form.

5. Where regular health work may not be disturbed and the nurse or physician is actually at the school, it may be legitimate to do occasional minor surgical dressings in exceptional occasions.

Note. Where treatment is given in school clinics written permission from the parents must be obtained.

THE PERSONAL LIABILITY OF HEALTH OFFICIALS[1]

"The Department of Health is occasionally asked to advise health officers as to the possibility of their being sued for damages on account of official acts. Section 21-*b* of the Public Health Law contains the provision that

'No health officer, inspector, public health nurse, or other representative of a public health officer, and no person or persons other than the city, village or town by which such health officer or representative thereof is employed shall be sued or held to liability for any act done or omitted by any such health officer or representative of a health officer in good faith and with ordinary discretion on behalf or under the direction of such city, village or town or pursuant to its regulations or ordinances, or the sanitary code, or the public health law,'

but that the locality should be liable in such cases, should any liability be established.

"Notwithstanding this provision, health officers have been sued and only recently a judgment of several hundred dollars was confirmed against a rural health officer, following a suit for damages, it having been claimed that through the negligence of the health officer property has been damaged by smoke in the course of fumigation of a house with sulphur following removal of a case of tuberculosis.

"Referring to the clause in Section 21-*b* the Attorney-General, discussing the subject informally, says that it does not go beyond the principles long established:

"it grants no immunity except for acts done or omitted 'in good faith and with ordinary discretion' on behalf of the public or pursuant to law. So much immunity they have always had. In short, the Legislature, in enacting this statute, has not superseded common law and the decisions, but has merely declared them.'

"Public officers,' he says:

"are thoroughly protected from individual liability so long as they act within their jurisdiction (and without negligence), but they could not in any event be protected, even by statute, if they overstep their jurisdiction.

"As to negligence, there is a distinction between a 'ministerial' act, where a duty imposed upon an officer 'is so specific that no room is left for the exercise of judgment,' and 'discretionary' or 'judicial' acts, requiring the exercise of judgment. An officer *may be held liable for negligence* in the performance of a *'ministerial'* duty, but is *not* liable for an error in judgment or 'mistaken exercise of discretion,' when the act is one calling for the exercise of judgment or discretion and he had jurisdiction in the matter.

[1] Health News, p. 38, Vol II, No. 13, Apr. 13, 1925.

"In short, a health official, if the act is one which he had to perform, and as to which he had no discretion to exercise, will be liable for any negligence in the performance of such act. But where the act is one as to which a hearing is held and a decision is reached as a result of such hearing, or where the act is not a positive duty but depends upon the officer's judgment, that will be a judicial act and there will be no liability for error or even for negligence provided always the officer had jurisdiction in the case.'

"It behooves every health official, both for his own protection and in the interest of efficiency, to be thoroughly conversant with the scope of his jurisdiction and his legal limitations, and to adhere to procedures which are established and generally recognized. Fortunately the courts recognize the fact that health officials often have to act promptly in the face of unusual emergencies in which public health appears to be threatened, and, when questions arise as to the good faith and discretion with which they have acted, are inclined to give them 'the benefit of the doubt.'"

HEALTH SERVICE SUPPLIES

Following is a list of Health Service Supplies used at Newark, N. J. It has been praised highly.

Health Service Supplies

(For Use by Medical Inspectors and School Nurses)

Orders for medical inspection supplies, if any are needed, must be sent in only on Monday of each week by the Principal.

Use the regular school order blank.

Do not order any other supplies on these orders.

List of Supplies, etc.

Absorbent cotton, ½ lb. pkgs., J. & J., Red Cross
Adhesive Plaster, 2″ × 10 yds., J. & J., "Z.O."
Bandages, 2″ × 10 yds., J. & J., Linton gauze
Bandages, 1″ × 10 yds., J. & J., Linton gauze
Bandage Scissors
Ciliary Forceps
Eye Chart 4,308, E.
4,316, Various Letters
Illiterate
Eye Droppers
Gauze, J. & J. Red Cross, in pkgs., containing 1 sq. yd.
Glass Jar, 2 qt. (for bandages)
Ivory Soap
Paper Towels ..... In rolls
Surgical Scissors, pointed
Splinter Forceps
Thermometers, Clinical
Tongue Depressors ..... In pkgs. of 100
Tooth Picks ..... In boxes
Vaccination Shields[1]
Alcohol ..... In 8 oz. bottles
Argyrol, 5 per cent ..... In 2 oz. bottles
Aromatic Spirits of Ammonia ..... In 4 oz. bottles

[1] The authors of this book believe vaccination shields should never be used.

Boracic Acid	In 8 oz. bottles
Boric Acid Ointment	In 2 oz. jars
Collodion, Flexible	In 2 oz. bottles
Hychlorite	In 4 oz. bottles
Iodine, Tincture	In 4 oz. bottles
Lysol	In 4 oz. bottles
Peroxide of Hydrogen	In 4 oz. bottles
Silver Nitrate	In sticks
Stearate of Zinc (powder)	In boxes
Sulphur Ointment	In 2 oz. jars
Sweet Oil	In 4 oz. bottles
Tincture of Green Soap	In 6 oz. bottles
White Precipitate of Mercury Ointment	In 2 oz. jars
Zinc Oxide Ointment	In 2 oz. jars

Exclusion Blank Book

Form 809.	Preliminary Contagious Disease Report
Form 877	Notice to Parent (pads of 50)
Form 879	Physical Record Card
Form 880	Prescription for Vermin (pads of 50)
Form 881	Prescription for Itch (pads of 100)
Form 882	Prescription for Ringworm (pads of 100)
Form 883	Prescription for Contagious Impetigo (pads of 100)
Form 885	Envelope addressed to Supervisor of Med. Insp.
Form 888	Treatment Card, Blue
Form 888S.	Treatment Card, Salmon
Form 891	Parents' request for treatment
Form 896	Daily Report of Medical Inspector or Nurse

FOLLOW-UP WORK

When the diagnosis is made, a notice should be sent to the parent either by written note or telephone as seems most practical. Where explanation, emphasis, or home aid is needed, a follow-up visit is desirable. The conditions in the school personnel will decide who shall do the visiting.

The nurse, principal, teacher, or visiting teacher makes the contact, the nurse usually being the most desirable person. The purposes of the visits are (1) establishment of friendly relations, (2) teaching, (3) explanations, or (4) to give information as to facilities for treatment.

In pediculosis, the nurse may demonstrate the kerosene or other types of shampoo or show the mother the proper method. Always she may advise as to diet and as to hygiene both personal and home.

Social service visits, either from representatives of the agencies (in referred cases), or by the visiting teacher, emphasize the social element although all other visitors must keep this in mind. As a matter of efficiency in serving the community, the worst cases are turned over to the social agencies, if for no other reason than that the agencies' personnel permits more visits than is possible in a school system. As far as actual handling of cases is concerned, the successful school system should be able to handle these as well as the agency. Nevertheless, if the agency is available, utilize it rather than compete.

Follow-up work is the most important feature of a school health system from the view of preventive medicine since results will depend largely upon

it. The average parent, strangely enough, pays as little attention to the customary notice sent from school as to form letters, from any source. Notices alone are worth sending but get no remarkable result as compared with notices plus visits.

FACILITIES AND AGENCIES FOR TREATMENT

If the school does not provide a treatment program, who will do so? The problem differs in the large city, the small city, and the rural district.

The private physician should always see the case when his service can be afforded. He is more familiar with family problems, personalities, and history. Hence his results should be better than those of a public clinic and his services should be more personal.

When the parent is unable to provide a private physician (and the decision should be made by other agencies than the school) the procedure for securing medical service varies.

In the country, application may be made to the proper persons, the county health authorities, the local health officials, or the Overseer of the Poor, who will provide proper attention by a physician assigned.

In the city, whether large or small the organization in that particular city will determine the action. In general the smaller city will have less varied and less frequent clinics. For highly specialized work, recourse to larger centers may be necessary. Most communities have facilities for care of the average case.

The diagnostic clinic is commonly either a medical group or a semi-private organization in a hospital. Possibly a hospital outpatient department may be so classed, depending largely on methods used.

Some school systems, as in Detroit, have the benefit of their own diagnostic clinic; in this particular case, under the direction of the Board of Health. Here the staff consists of an eye specialist, a nose and throat specialist and an internist. This is group medicine applied to school health work. Cases are referred by the teachers when it is believed necessary. A clinic of this type has considerable merit. It would seem the logical agency where the school population is large enough; otherwise the same duties are carried out by physicians less specialized.

In rural districts the solution is through the travelling clinic, under the auspices of the state health officials or some semi-private organization like the Red Cross. The travelling dental clinics in Vermont and the travelling clinics in Nova Scotia have met good success, although in the latter case the follow-up work is still in the experimental stage.

Where the travelling clinic is not available, the local or nearby physicians must be asked to do the school work for a nominal sum. In no case should this service be neglected.

In the families where private treatment is impossible, school children depend largely on the school for medical advice. Therefore, medical treatment becomes a question of outpatient department or hospital ward depending on the degree of illness and whether the case is ambulatory. In the country, such work is cared for by private physicians in ambulatory cases and

by them or by local or nearby hospitals if such service is needed. Financial arrangements are made by the local authorities for the poor or by private subscription, possibly through some plan which the hospital has available, as the use of endowed beds.

General surgical treatment is in much the same status. It is not desirable for the school to undertake to furnish surgical dressings for any period of days unless there is some special reason for so doing.

In both medical and surgical cases, home conditions may be poor and the child actually more comfortable in the school than the home. For this reason a convalescent child is sometimes readmitted to school while still in need of simple medical or surgical care. In case of admission, very definite responsibility for the child's welfare is assumed by the school. The convenience of the child is important but the question of personnel and facilities for handling these cases must not be forgotten.

Eye examinations are made by medical and non-medical eye specialists, the most of the work being done by the non-medical group in many cities because clinic facilities are usually inadequate. Between this group and the physicians there exists a lack of good feeling. The school physician will find that he gains nothing by participating in this controversy. The cooperation of the medical eye specialist is to be expected. Unquestionably eye treatment and operations are always the functions of physicians as are the more difficult types of refraction, the state laws often covering the matter. Even in the smaller cities there is some outpatient or Board of Health Clinic available several times a week for eye troubles. If not, some local physician or ophthalmologist will care for the cases, as in the rural communities where the local physician handles such unpaid cases. Operations in such instances are usually performed by a specialist at some medical center.

Nose and throat treatment and operations are cared for by outpatient clinics or, in the country, by the local physicians, a specialist being called as needed, or cases may be brought to him. Many family physicians do tonsillectomies and treat common throat disturbances. Tonsillectomy is frequently done in the home. The common custom in outpatient departments is to keep the child at least several hours after the operation, and usually overnight. After tonsillectomy, the approved practice is to keep any child under continuous, careful, skilled observation for twenty-four hours at least.

Dental treatment is usually given by the dentists at their offices. Dental clinics are available in outpatient departments but are usually for extraction only. School or Board of Health Dental Clinics, often with dental hygienists as well, offer treatment and fillings as well as cleaning and extraction. The tendency seems to be to provide clinics for extraction and expect the child to seek the private dentist for fillings and other work requiring several appointments. Like physicians, dentists expect to do a certain amount of private work for which no pay is received. Because dental work is essential and because it should be begun early and since the formation of the habit of frequent examination and correction is desirable, the best plan is to provide adequate dental service of all kinds where possible. The element of competi-

tion is different from that in medicine since preventive methods undoubtedly build up desirable professional relationships between dentists and patients. The child who reaches adolescence with a good set of teeth as a result of dental care, will not neglect them, when he reaches the age for earning wages.

In rural communities, it is the best practice, either to provide travelling dental clinics, or to depend upon the local dentists. Educational methods are used to bring dentist and patient together.

Orthopedic clinics are uncommon since those skilled in this specialty are usually found in the larger centers because of the larger number of cases. The family physician often handles non-surgical cases of this group. Facilities are improving in the smaller cities and the rural districts use the larger centers for consultation purposes. Orthopedic clinics have a high overhead expense; apparatus is most costly, hence care of orthopedic cases is difficult to provide. Many cases are semi-ambulatory. Voluntary organizations can assist in the matter of transportation to the clinic, in paying for the brace or other apparatus, or as needed.

VOLUNTARY ORGANIZATIONS

Many voluntary organizations of the social service or educational type have a definite part in the successful health program.

The strictly social service group as represented by the hospital social service forms the contact between the school medical system and the hospital and makes coordination possible.

Organizations such as the Red Cross and the Anti-tuberculosis associations usually do educational work and sometimes they provide for certain special clinics. Being national as well as state-wide in scope these societies sometimes outline a national program. The Red Cross provides courses on Home Nursing, Baby Hygiene and the like; the tuberculosis organizations, through literature, posters, and speakers teach prevention of the disease, plus proper care if the disease already exists. Sanitoria are sometimes under their auspices.

The American Child Health Association is educational and advisory in type. It specializes in excellent literature, health demonstrations, and research. Its present policy is to encourage surveys of work being done and to encourage a better professional preparation in those engaged in teaching health, and other health work.

Various clubs are taking considerable interest in health and the national organizations often suggest programs to local chapters. This is true in the case of the Unitarian Layman's League, the Federation of Women's Clubs, the Chambers of Commerce. Occasionally surveys are made, as a recent school health study by the National Chamber of Commerce.

Local or state chapters of national organizations may also take up special programs as (1) in the case of the Mothercraft work which is sponsored in Massachusetts, and certain other states by the State Federation of Women's Clubs, (2) the Nutrition campaign of the type carried on by the Fall River (Massachusetts) Rotary Club and others.

In addition to this promotion work, many organizations, on application, will assist the school authorities in obtaining and paying for treatment and care of pupils. The Red Cross has often provided the first school nurse in a community, although the women's club has frequently done so. Special funds are often available or special contributions made up as needed.

SCORING SCHOOL HEALTH PROGRAMS

In response to a demand for an Appraisal Form for City Health Work, the Committee on Administrative Practice of the American Public Health Association has devised an excellent form,[1] in coöperation with such public and voluntary organizations as the American Child Health Association (directly), the National Tuberculosis Association, the American Social Hygiene Association, the National Organization for Public Health Nursing, and other members of the National Health Council.

This form is intended to serve:

1. "As a brief for annual appropriations of the Department of Health."
2. "As a basis for a Health Program."
3. "As a basis for an Annual Report."
4. "As a means of interesting a Mayor or Chamber of Commerce."
5. "As a means of arousing and cementing the interests of the Department of Health and Education and of the private agencies in each other."

A section on Supplementary Information contains the following headings:

A. Population.

B. Births, Deaths and Rates.

C. Finances.

D. Recent Changes in City Government.

E. Health Activities, with name of agency and person in charge of certain specific activities.

F. Expenditures for Health, including classification of official and non-official expenditures for this purpose.

G. Health Personnel in Community, *i.e.* in the Department of Health, Dept. of Education, Visiting Nurses Association, and Other Agencies. Columns are arranged to show whether this personnel is on Part Time or Full Time basis and the following headings are used: "Administration; Vital Statistics; Communicable Diseases; Venereal Diseases; Tuberculosis; Prenatal; Inf. and Preschool; School Health; Sanitation; Food and Milk; Laboratory; Other; Total."

The Appraisal[2] Form includes the following Activities:

[1] This form will be studied further by the same group and may be modified if need is found. The present form is the result of the trial use of the previous form by the United States Public Health Service and the American Child Health Association in the study of data obtained by these organizations in surveys.

[2] The following abbreviations and definitions are used by the makers of this form: H. D. means Health Department; O. O. A. means Other Official Agencies; V. A. means Voluntary Agencies. Quota is defined "to mean the volume of service required if a city is to receive full credit." Performance is defined "to mean the volume of service actually performed in the city."

A. Vital Statistics (Total Points 60).

B. Communicable Disease Control (Total Points 175). Immunization against smallpox and diphtheria (score 40) are the chief activities in which the school is mentioned.

C. Venereal Disease Control (Total Points 50).

D. Tuberculosis Control (Total Points 100). "Open-air Classrooms, Preventoria, or Day Camps" is an item valued at 15; the standard is ten children per one thousand grade school population (public and private), and an "adequate mid-day meal and rest period as a part of these facilities shall be necessary for a full score."

E. Health of the Child (divided into "Health of the Child up to School Age," with Total Points 200; and "Health of the School Child," with Total Points 150). This section is printed below, as far as it applies to the school child.

F. Sanitation: Food and Milk Control; Water; Sewerage (Total Points 175).

G. Laboratory (Total Points 70).

H. Popular Health Instruction (Total Points 20).

Finally, there is a section for Summary of Ratings, to obtain Grand Total. This is followed by several blank pages for Remarks and recording new methods and special service not already covered.

Following is the section[1] which applies to school health programs:

[1] American Journal of Public Health, Vol. XVI, Number 1, Jan., 1926.

HEALTH OF THE SCHOOL CHILD

33. Weighing

Number of children enrolled in school:

	Up to and including Eighth Grade	High School
Public		
Private [1]		

[1] Parochial schools shall be considered private throughout this schedule.

Number of schools:

Public		
Private		

School year:

From ..... to .....

a. Frequency of weighing of children
Record the number of schools in which all children, or all the children in some grade, are weighed periodically:

	All Children	Children in Some Grade
Monthly		
Twice a year		
Once a year		

b. Are parents notified of the weight?

Once a month .....

Twice a year .....

Once a year .....

How? .....

c. Are underweights [2] weighed?

Once a month .....

More frequently .....

[2] By "underweights" is meant those who are so considered by the standard in use in the school system under consideration, whether 7 per cent, 10 per cent, or 15 per cent under average weight for height and age.

APPRAISAL FORM 45

HEALTH OF THE SCHOOL CHILD

(Total Points 150)

In framing this section the endeavor has been to select the most tangible indices of school health work such as can be expressed numerically.

The Superintendent of Schools should be interviewed and the answers to the questions secured from him, his deputy or the one he designates as most familiar with health work in the schools. If notified in advance it should be possible for the superintendent to have the desired information available, thus making unnecessary a trip to individual schools.

The surveyor should make clear to the superintendent the value of the appraisal in revealing the completeness of health activities within the city as measured against a carefully worked out standard.

There should be available for inspection:

i. Copies of regulations issued by the superintendent in use by the teachers including bulletins, outlines, courses of study of hygiene and related subjects, such as physical education and home economics.
ii. Records of the medical, nursing, dental, physical, educational or health educational work as required by the superintendent or his deputies in this field.
iii. Evidence of the work accomplished by the children themselves.

GENERAL NOTE: The term "grade school children" refers to the children in all schools, public and private.

	Value of Item	*Value Assigned* HD	OOA	VA	*Total*
33. Weighing (10)					
a. All children in some grade in 80 per cent of schools weighed	3				
Once per month . . . 3 *Points* Twice per year . . . 2 Once per year . . . 1					
b. Notification of weight sent to parents	5				
Once per month . . . 5 *Points* Twice per year . . . 3 Once per year . . . 2					
NOTE: It is believed that children profit by having their weight and their gain or loss brought regularly to the attention of their parents. This item requires that parents be regularly advised of the results of weighing children. Credit may be taken if this is done by including the weight as an item on the report card or by any other method accomplishing the same result.					
c. Underweights weighed	2				
Once per 2 weeks . . . 2 *Points* Once per 4 weeks . . . 1					

34. Physical Examinations

a. This item is intended to evaluate the work of the medical inspection service in conducting health examinations of grade school children in public and private schools. It is based upon two considerations: First, the proportion of the total grade school population which is examined annually; and second, the thoroughness of the examination as indicated by the time that is devoted to each individual.

Check usual frequency of school physical examination by physician:
Annually ..... Every 2 years .....
Every 4 years ..... Once in school career .....

Grades Examined Last Year	By Whom Examined	No. Pupils Examined	Rate Examined Children per Hour
.....			
.....			
.....			
Special Cases			

NOTE: If more than one plan of examination exists it should be noted to which schools each applies.

b. Are examinations of vision and hearing and measuring of height and weight conducted in schools by teacher?

Public .....

Private .....

By Nurse?

Public .....

Private .....

c. Are parents invited to be present at physical examination of children?

.....

Per cent of parents present .....

GENERAL NOTE

The ultimate purpose of the medical examination of school children is the well-being of the child which will be promoted by the correction or alleviation of defects thus revealed. We may look forward hopefully to the time when periodic visits to the family physician for a thorough health examination and a welcoming and understanding attitude on the part of the practitioner, will be as commonplace as periodic inspection visits to the dentist are coming to be.

For the present the medical examinations made by the schools or the health department are selected as an index of the appreciation of this work within a city. There are different systems of examination now in use. One is the cursory inspection by physicians, nurses and teachers with the burden of the complete examination thrown back on the family physician. Another is the more complete examination made by the physician in the schools. With the same amount of money available, the more time consumed on the examination the less the number of children reached. In the scoring the greater credit has been given the more thorough examination. No additional credit is given for exceeding 30 per cent of the school population annually. This recognizes the practical ideal of three complete examinations of a school child during his school career.

With regard to the time devoted to each child, it is recognized that the more deliberate examination at which the parents may be present, should be an educational experience for

34. Physical Examinations (45)	Value of Item	Value Assigned HD	OOA	VA	Total
a. Value of physical examination by physician based on per cent of grade school population examined, and rate of examination . . .	35				

If children are examined at the rate of:

6 Per Hour or Less: Per cent Exam.		7–13 Per Hour: Per cent Exam.	
30	35 *pts.*	30	29 *pts.*
25	31	25	25
20	26	20	21
15	21	15	17
10	16	10	13
5	11	5	9

14–20 Per Hour: Per cent Exam.		21–30 Per Hour: Per cent Exam.	
30	22 *pts.*	30	15 *pts.*
25	19	25	13
20	16	20	11
15	13	15	9
10	10	10	7
5	7	5	5

b. Inspection of vision and hearing, and measurement of height and weight conducted by teacher or nurse	5				

NOTE: This credit is given in recognition of the importance of teachers and nurses having first hand knowledge of the condition of the pupils and of relieving the physician by delegation of such routine examinations.

c. Parents notified of the time of physical examination by the physician and invited to be present	5				

NOTE: This item recognizes the desirability of parents being present when the physician examines their children and gives credit for systematic invitation of parents to be present at a definite time for this purpose.

parent, child, nurse, and teacher. The rate of examination varies in this item from 6 children per hour (10 minutes per child) to 30 per hour (2 minutes per child). The rates here expressed are the average rates and should be determined by dividing the number examined per year by the total number of hours actually devoted by physicians to the health examinations.

If both the thorough, sometimes called special, type of examination and the rapid or routine inspection are employed, credit may be given to each type by calculating the percentage and the rates of examination of each type separately and adding the separate score. The maximum score allowed, however, is 35 points.

For example:

		Rate of Conducting	Score
Total grade school population	10,000		
Total number of children examined	3,000		
Number of thorough examinations	500,	or 5 per cent— 6/hr.	11 pts.
Number of rapid inspections	2,500,	or 25 per cent—20/hr.	19 pts.
		Total score	30 pts.

In order to avoid unnecessary complications, the time devoted to dental inspection by dentist or hygienist has not been included in the above calculation of time.

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35. **Discovery and Correction of Defects**

Children found with defects during last 12 mos. for which records are available. *Dated,* *No. of Children*	Children who have had *defects corrected* during last 12 mos. for which records are available. *No. of Children*
Teeth requiring:	Teeth:
Filling	Filled
Extraction	Extracted
Cleaning	Cleaned
Eyes defective	Fitted with glasses
Hearing defective	Receiving treatment and special instruction
Nose or throat defects	Operations for removal of adenoids or tonsils
Heart defects	Placed under physicians' care
Lung defects	Placed under physicians' care
Skin defects	With defects corrected
Glandular defects	Under treatment
Orthopedic defects	Under treatment
Underweight (10% or more) *Per cent of children*	
At beginning of school year	
At end of school year	

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35. Correction of Defects (30)	Value of Item	Value Assigned HD	OOA	VA	Total
Correction of defects per 1,000 grade school population expressed in terms of number of children having such defects corrected:					
a. Teeth Filled	5				
Standard: 100 individuals' teeth filled per 1,000 grade school population					
Indiv. 100 . . . 5 *Points*					
0 . . . 0					
Quota					
b. Teeth Extracted	3				
Standard: 90 individuals' teeth extracted per 1,000 grade school population					
Indiv. 90 . . . 3 *Points*					
0 . . . 0					
Quota					
c. Teeth Cleaned	3				
Standard: 300 individuals' mouths cleaned per 1,000 grade school population					
Indiv. 300 . . . 3 *Points*					
0 . . . 0					
Quota					
d. Glasses Fitted	5				
Standard: 50 individuals fitted with glasses per 1,000 grade school population					
Indiv. 50 . . . 5 *Points*					
0 . . . 0					
Quota					
e. Tonsil or Adenoid Operations	8				
Standard: 25 individuals operated upon per 1,000 grade school population					
Indiv. 25 . . . 8 *Points*					
0 . . . 0					
Quota					
f. Heart or Lung Defects placed under physicians' care	6				
Standard: 10 individuals per 1,000 grade school population					
Indiv. 10 . . . 6 *Points*					
0 . . . 0					
Quota					

NOTE: Owing to lack of uniformity in the meaning of the terms *Defect* and *Correction* only the more definite correctable defects have been selected as criteria of the effectiveness of the school health service in securing corrections. And for the same reason corrected defects are referred to school population rather than to defects recorded as present.

50 SURVEY SCHEDULE

36. **Nurses' Visits**

Total number of visits of nurses on behalf of school children, whether made to the home, to a clinic, hospital, or elsewhere:

	No. Visits	No. Patients
Health Department	.....	.....
Other Official Agencies	.....	.....
Voluntary Agencies	.....	.....

NOTE: This does not include interviews with children by the nurse in schools.

37. **Sanitation of School Buildings**

a. Are all school buildings regularly inspected as to their hygienic conditions by an officer of the Health Department ..... or Department of Education ..... who observes and records the salient sanitary condition in each building?

Public Schools .....

Private Schools .....

How frequently? .....

b. Number of school buildings provided with:

Adequate lavatory facilities (1 bowl or equivalent length of sink to 80 children), including individual or paper towels .....

Adequate toilets (1 to 40 children) and toilet paper .....

Individual drinking cups or bubbling fountains .....

Number of schools in which all rooms are provided with:

Thermometers .....

Adjustable seats .....

APPRAISAL FORM 51

	Value of Item	Value Assigned HD	OOA	VA	Total
36. Nurses' Visits					
Number of nurses' visits in behalf of grade school population	10				
Standard: 400 visits per 1,000 grade school population					
Visits 400 . . . 10 *Points*					
0 . . . 0					
Quota					
37. Sanitation of School Buildings (15)					
a. School buildings inspected once per year with reference to hygienic and sanitary conditions	5				
b. Sanitary facilities	10				
All schools provided with:					
Adequate lavatory facilities with individual or paper towels	2				
Adequate toilets and toilet paper	2				
Individual drinking cups or bubbling fountains	2				
Schoolrooms in 90 per cent of buildings provided with:					
Thermometer	2				
Adjustable seats	2				
Standard: 90 per cent of the buildings provided with 25 per cent or more adjustable seats in each room					
NOTE: This item assumes that the school plant is not in condition to operate hygienically or to give proper instruction in health subjects unless the facilities enumerated are present in each school building.					

52 **SURVEY SCHEDULE**

38. Health Education

a. Number of minutes per week devoted to definite health instruction in:

Grades		Grades	
1	.....	5	.....
2	.....	6	.....
3	.....	7	.....
4	.....	8	.....

Is textbook used in grades: 1 ..... 2 ..... 3 .....
4 ..... 5 ..... 6 ..... 7 ..... 8 .....

.....

b. Are children in any grade engaged in activities (designed to increase their knowledge of personal and public health, or to develop their health habits), such as the following:

Health Activities	Schools and Grades thus Engaged	
	No. of Schools	Grades
Inspection of places of health and sanitary interest	.....	.....
Writing of essays on health . .	.....	.....
Daily recording of health habits .	.....	.....
Making of health books . . .	.....	.....
Making of health posters . . .	.....	.....
Supervision of ventilation . . .	.....	.....

39. Recreation

a. Number of acres of playground area within the built-up portions of the city .....

b. Is there organized direction of recreation, as evidenced by presence of a recreation commission, organization, or paid director? .....

c. Total participating attendance all playgrounds .....

APPRAISAL FORM 53

	Value of Item	Value Assigned HD	OOA	VA	Total
38. Health Education (25)					
a. Systematic instruction in health	10				
Standard: 40 minutes per week in all grades devoted to definite instruction based upon a standard textbook in grades above the third					
Minutes 40 . . . 10 *Points*					
20 . . . 5					
0 . . . 0					
Quota.....					
b. All children in some grade in 80 per cent of schools engaged in activities (designed to increase their knowledge of personal and public health, or to develop their health habits) such as the following:					
Inspection of places of health and sanitary interest					
Writing of essays on health					
Daily recording of health habits					
Making of health books					
Making of health posters					
Supervision of ventilation					
If effective work of this nature is conducted in:					
Any one of the first five grades, score 5 or 0					
Any of the grades 6, 7 or 8, score 10 or 0					
One or more grades of both groups, score 15 or 0					
Throughout the entire school system . . .	15				
NOTE: The scoring between 0–5, 0–10, 0–15, should be based upon the per cent of schools in which the work is carried out.					
39. Recreation (15)					
a. Playground Area	5				
Standard: Acres of playground area, within built-up portions of the city, per 1,000 total school population.					
Acre 1 . . . 10 *Points*					
¼ . . . 0					
Quota.....					
b. If there is organized direction of recreation as evidenced by presence of a recreation commission, organization, or paid director . .	5				
c. Attendance at playground	5				
Standard: 20,000 participating attendance annually per 1,000 total school population.					
Attendance 20,000 . . . 5 *Points*					
15,000 . . . 4					
10,000 . . . 3					
5,000 . . . 2					
Quota.....					

CHAPTER V

COST OF HEALTH SUPERVISION AND HOW IT IS TO BE PAID FOR

So many local factors enter into the cost of school health supervision that the actual cost of any quality of service in a given community can not be estimated accurately except with due allowance for local conditions. This chapter is intended (1) to furnish some idea of what is being spent in different communities for health service and (2) to suggest what may be a fair price to pay for certain types of service.

Much confusion regarding the cost of health supervision in schools has existed because of lack of uniformity with reference to items considered and included in amounts expected. Thus the cost of physical education and health inspection together is greater than that of health inspection alone. When it is remembered that health supervision includes the cost of health inspection or service, physical education, and health education, one realizes that figures from a report most nearly covering all these items will furnish the more accurate estimate of the entire amount needed.

Two recent studies (1) a Report on Health Service in City Schools, of the Joint Committee on Health Problems in Education, Thomas D. Wood, Chairman; and (2) the Report of the Committee on Municipal Health Practice of the American Public Health Association) offer data regarding:

1. How much is being spent in communities of various sizes;
2. The approximate cost of certain plans;
3. What is the minimum expenditure which can be expected to give effective results.

The following tables from the Joint Committee Report show costs of Health Supervision *and* Physical Education:

Annual Cost of Health Supervision and Physical Education per pupil.

Annual Cost	All Cities	Under 10,000	10,000 to 25,000	25,000 to 50,000	50,000 to100,000	100,000 and over
$ .00- .24	15	1	10	3		1
.25- .49	19	1	9	2	2	5
.50- .74	29		17	8	2	2
.75- .99	24		8	8	3	5
1.00-1.24	39	1	20	9	4	5
1.25-1.49	26		18	1	2	5
1.50-1.74	25	2	16	5	2	
1.75-1.99	13		7	2	3	1
2.00-2.24	25	1	17	4	2	1
2.25-2.49	7		1	1	4	1
2.50-2.74	14	1	7	4		2
2.75-2.99	1		1			
3.00-3.24	15	1	6	4	1	3
3.25-3.49	5		1	1	1	2
3.50-3.74	6		3	2		1
3.75-3.99	2	1	1			
4.00-4.24	6	1	2	1	1	1
4.25-4.49	2		1	1		
4.50-4.74	2		1		1	
4.75-4.99	1			1		
5.00-5.24	2		2			
5.25-5.49						
5.50-5.74						
5.75-5.99						
6.00-6.24	1			1		
6.25-6.49	1		1			
6.50-6.74						
6.75-6.99						
7.00-7.24	1			1		
7.25-7.49						
7.50-7.74						
7.75-7.99						
8.00-8.24	1				1	
	282	10	149	59	29	35
Median	$1.37	$1.74	$1.39	$1.24	$1.74	$1.24
Quartile 1	.82	1.12	.77	.80	.99	.79
Quartile 3	2.21	3.12	2.09	2.55	2.37	2.62

Median is that point on the scale at which one half of the cases fall below it and one half of the cases are above it.

First Quartile (25 percentile) is that point on the scale at which one fourth of the cases fall below it and three fourths of the cases are above it.

Third Quartile (75 percentile) is that point on the scale at which three fourths of the cases fall below it and one fourth of the cases are above it.

The difference in size of the cities has a very definite influence on cost as is shown below.

MEDIAN COST OF HEALTH SUPERVISION AND PHYSICAL EDUCATION PER CHILD ACCORDING TO SIZE OF CITIES

Under ten thousand	$1.74
Fifty to one hundred thousand	1.74
Ten to twenty-five thousand	1.39
All cities	1.37
Twenty-five to fifty thousand	1.24
One hundred thousand and over	1.24

The highest median, first quartile and third quartile were found in cities of the Western States and the lowest in the Southern States.

From the above table it seems that the groups with twenty-five to fifty thousand and those above one hundred thousand can be handled most

cheaply. This is probably due to the fact that the group below ten thousand especially and the group of fifty to one hundred thousand have much the same overhead expenses as the larger and more economical groups so that essentially two broad types of systems exist, one which covers up to fifty thousand and one which handles cities of fifty thousand and above. Expansion on these two basic lines seems to be done with considerable economy.

The regional distribution of cost is interesting, the cities of the Western states being at the top with $2.34 per pupil and the cities of the Southern States at the bottom with $.99 per child. This cost is not for the same service and simply shows that Western cities are more liberal rather than that other groups are more efficiently managed.

Annual Cost per Pupil for Health Supervision and Physical Education According to Region.

Annual Cost	All Cities	Eastern	Southern	Great Lakes	Agricultural	Western
$ .00- .24	15	2	6	5	2	
.25- .49	19	8	6	3	1	1
.50- .74	29	11	6	7	3	2
.75- .99	24	8	9	4	2	1
1.00-1.24	39	20	4	8	4	3
1.25-1.49	26	19	3	1	1	2
1.50-1.74	25	11	3	7	1	3
1.75-1.99	13	7		1	3	2
2.00-2.24	25	11	2	9	2	1
2.25-2.49	7	5		2		
2.50-2.74	14	7		2	4	1
2.75-2.99	1	1				
3.00-3.24	15	8		4	1	2
3.25-3.49	5	4				1
3.50-3.74	6	3		1	1	1
3.75-3.99	2	1				1
4.00-4.24	6	1	1	1	1	2
4.25-4.49	2			1		1
4.50-4.74	2		2			
4.75-4.99	1	1				
5.00-5.24	2				2	
5.25-5.49						
5.50-5.74						
5.75-5.99						
6.00-6.24	1			1		
6.25-6.49	1			1		
6.50-6.74						
6.75-6.99						
7.00-7.24	1	1				
7.25-7.49						
7.50-7.74						
7.75-7.99						
8.00-	1					1
Total	282	129	42	58	28	25
Median	$1.37	$1.45	$ .82	$1.53	$1.74	$1.87
Quartile 1	.82	1.03	.45	.74	.87	1.16
Quartile 3	2.21	2.24	1.24	2.21	2.62	3.49
Average	1.65	1.69	.96	1.65	1.87	2.34
Median	1.37	1.45	.82	1.53	1.74	1.87

Percentage of Total Expenditure for Education spent for Health Supervision and Physical Education According to Size of Cities.

Percentage	All Cities	Under 10,000	10,000 to 25,000	25,000 to 50,000	50,000 to 100,000	100,000 and over
.0- .4	18	1	12	4	1	
.5- .9	15		7	3	1	4
1.0-1.4	44		23	12	2	7
1.5-1.9	39	1	27	5	3	3
2.0-2.4	41	2	20	8	6	5
2.5-2.9	30	1	18	5	4	2
3.0-3.4	24	1	15	4	1	3
3.5-3.9	12	2	5	1	2	2
4.0-4.4	18		6	8	3	1
4.5-4.9	3		2	1		
5.0-5.4	11	1	6	2	1	1
5.5-5.9	3		1	2		
6.0-6.4	5		3		1	1
6.5-6.9						
7.0-7.4						
7.5-7.9						
8.0-8.4	2			2		
Total	265	9	145	57	25	29
Median	2.1	2.9	2.0	2.21	2.4	2.0
Quartile 1	1.28	1.9	1.27	1.19	1.73	1.11
Quartile 3	3.15	3.65	2.97	4.53	3.65	3.07

The average cost per pupil according to region then is as follows:

Western	$2.34
Agricultural	1.87
Eastern	1.69
Great Lakes	1.65
All cities	1.65
Southern	0.96

The median percentage of total expenditure for education spent for health supervision and physical education is 2.1 percent. The highest is in cities under ten thousand and the lowest is in cities between ten and twenty-five thousand and over one hundred thousand.

The table below shows the regional distribution with the highest median of 2.4 percent in cities of the Western States and the lowest in the Southern States with 1.9 percent. The cities of the Western States also show the highest first quartile; while the southern cities show the lowest first and third quartile. The cities of the Great Lakes had the highest third quartile. Here again the actual taxes raised per pupil should be taken into account for from other figures it is suggested that the Western States allow a much greater per capita cost of education than the Southern States so that the Western percentage figured on this basis would probably be higher and the difference from the Southern much greater than is suggested by this particular table.

Percentage of Total Expenditures for Education spent for Health Supervision and Physical Education According to Region.

Percentage	All Cities	Eastern	Southern	Great Lakes	Agricultural	Western
.0- .4	18	4	5	6	2	1
.5- .9	15	7	3	2	1	2
1.0-1.4	44	20	4	11	7	2
1.5-1.9	39	23	7	6	1	2
2.0-2.4	41	21	8	4	4	4
2.5-2.9	30	15	3	7	2	3
3.0-3.4	24	10	1	5	4	4
3.5-3.9	12	6		1	3	2
4.0-4.4	18	11	3	4		
4.5-4.9	3	2		1		
5.0-5.4	11	3	3	2	2	1
5.5-5.9	3	1		1	1	
6.0-6.4	5	1		3		1
6.5-6.9						
7.0-7.4						
7.5-7.9						
8.0-8.4	2			2		
Total	265	124	37	55	27	22
Median	2.1	2.09	1.09	2.28	2.28	2.4
Quartile 1	1.28	1.4	1.03	1.06	1.2	1.65
Quartile 3	3.15	3.05	2.34	3.4	3.28	3.28
	Comparison of median and average percentage.					
Median	2.1	2.09	1.9	2.28	2.28	2.4
Average	2.32	2.3	1.93	2.56	2.37	2.47

From the above table it can be seen that the average percentages of total expenditures for education spent for health supervision and physical education according to region are:

Great Lakes	2.56
Western	2.47
Agricultural	2.37
All cities	2.32
Eastern	2.30
Southern	1.93

Hiscock and Fales's report[1] is confined to the cost of Medical Inspection or Service *only*.

Expenditures for School—Actually Medical Inspection, 1920

Cities of population	No. cities	School enrollment	Expenditures	
			Total	Cost per pupil
500,000 and over	10	2,486,032	1,434,057	0.58
250,000 to 500,000	9	532,346	418,559	0.79
Less than 250,000	40	931,955	581,642	0.62
All cities	59	3,950,333	2,434,258	0.62

[1] Report of the Commitee on Municipal Health Department Practice of the American Public Health Association in cooperation with the United States Public Health Service. Public Health Bulletin No. 136, July, 1923. Government Printing Office, Washington, D. C.

In their analyses of these cities the authors compared 21 cities in which the Health Department controlled medical inspection with 32 cities in which the school health work was done by the Department of Education. The authors expressed dissatisfaction with the per capita cost of 48 cents per pupil under the former group and 91 cents per pupil under the latter. The Departments of education included in their costs expenditures for activities not included by Health Departments. Also certain overhead expenses of school medical inspection when under the health Departments, were charged to the Division of Child Hygiene, thus making a second reason for lower costs. Overhead charges figured from two percent in New York City to 18 percent in Cleveland, the average being about seven percent.

Seattle permitted the highest expenditure in the study; Flint, Mich., with $1.80 per pupil exceeded the expenditure per pupil among cities of less than 250,000 population, with Schenectady, N. Y. second with $1.24. The cost per capita amounted to 14 cents in those cities where the Department of Education was in charge and 8.1 where the Health Department did the medical inspection, this last figure corresponding closely with the 8.8 cents per capita for thirty cities in which a specific budgetary allotment for school medical inspection was included in the Health Department budget.

Some authorities believe that satisfactory school medical inspection can not be provided for less than seventy-five cents per pupil.

On page 43 is an estimate of the cost of health supervision in a city of 25,000 to 30,000 inhabitants, made by the Advisory Committee on Health Education of the National Child Health Council.

The following costs have been compiled from a questionnaire on School Health Work sent out in 1923 by the Bureau of Education, Washington, D. C. and represent averages of sums actually spent for the various purposes mentioned:

In cities having a population of 100,000 and more, the per capita expenditures for Medical Inspection (including all work done by physicians and nurses) ranged from five to twenty-one cents with an average of about eleven cents; for Dental Work .25 cents to 22.8 cents with an average of 12 cents; for Physical Training 1.27 cents to 47.4 cents with an average of 16 cents.

In cities of 30,000 to 100,000 population the corresponding figures are: Medical Inspection .01 to 28 cents, average 11.5 cents; Dental Work .04 to 8.7, average 4.8; Physical Training 2.7 cents to $1.17, average 30 cents.

In cities of 10,000 to 30,000 population the figures are: Medical Inspection .59 cents to 41.3 cents per capita, average about 12 cents; Dental Work .2 to 21 cents, average 3 cents. Physical Training 1.4 to $1.085, average 21 cents.

Figures are per capita for the general population though the cost per child can be roughly estimated from them. (Estimate one child to five inhabitants; therefore multiply quoted figures by five for cost per child.)

A report from the Board of Education, Rochester, N. Y., entitled "The Cost of Public School Education," states that the total cost per pupil for 31,671 pupils for all school activities, including international service, other

current operating expenses, and debt service was $100.35. Of this, $18.56 per pupil was spent for Health Education activities.

The factor of efficiency and results of the work must be considered as well as the expenditure per child. The size of the city is shown, in the tables presented, to be a factor in the amount spent. Methods of bookkeeping, especially in matters of overhead; the actual amount and type of service; and what is included in the stated cost all must affect the reported expenditure of a community for school health work.

Regarding cost, this is positive—the least cost for the most efficient work is attainable under one director for the whole school health program. The cost per child is no criterion of results or even of wise expenditure. Comparisons eventually will have to be made on the basis of what service is rendered and what results are attained. So many valuable school health activities are now possible that the problem of cost is to be determined largely by (1) what are the actual needs of the community and (2) how much the taxpayers are willing to spend to meet these needs.

To assist in the preparation of budgets the following list of suitable salaries is provided. Standards for pay for different positions vary considerably but for efficient service, pay must be ample to warrant the expenditure of maximum time and interest by the employee. The figures below are suggested as a minimum for which efficient service could be expected from persons other than enthusiasts who enter the work as a pastime:

Health Supervisor (Director of the Health Program), four thousand dollars and upwards.

Part time physicians, on the basis of two hours per day guaranteed during the forty weeks of the school year, five days per week—$2.50 to $3.00 an hour or one thousand dollars per year, preferably on the hourly basis.

Specialists, never less than one thousand dollars per year on a part-time basis or hourly pay slightly higher than regular physicians since the specialist commands higher fees in practice.

Dentists, about the same as physicians, on hourly basis. Or ten dollars for a day of five hours (as for physicians).

Dental hygienists, thirty dollars a week.

Supervisor of school nurses, 10 percent or more increase over regular school nurses' rates.

School nurses, thirty dollars a week and upward. This is lower than the rate for private nurses. Some plan should be developed to recognize length of service, just as this plan has been developed for teachers.

Clerks, salary will depend on training, skill, and work to be handled.

Nutrition workers and special workers, about the salary for school nurses.

These salaries should be compared with those in the table on page 43.

Some of the salaries actually being paid in 1922–23 were:

Health supervisors (N. E. A. Research Bulletin).[1]

[1] The Research Bulletin of the National Education Association. Vol. One, Number Two, March, 1923.

Cities over 100,000 population:
$1,250 to $5,000; median 3,100.
Under 100,000 population:
30,000 to 100,000; median $2,300
10,000 to 30,000; median 1,180
5,000 to 10,000; median 1,400
2,500 to 5,000; median 1,233

The other salaries mentioned above are those in actual practice. However the salaries of school physicians on a part time basis vary from small sums which in no way compensate for service rendered, up to the rate quoted in the table or more.

The cost of school health supervision should be met through a definite apportionment of state funds and of the municipal budget, and should be specifically named for this purpose in the budget. The service should be financed through taxes because it is provided for all school children in the community.

Private persons or private agencies sometimes provide for the financing of school health supervision as a demonstration project to be taken over later by the community. Certain semi-private organizations may legitimately finance such work under these conditions and this procedure may be necessary to prove the value of such work to the community.

On the other hand, eventually, coördination and efficiency are greatest when school health supervision is under municipal control and this must be the final aim.

Special studies may be financed by various means, depending on whether the community is willing to furnish funds for such purposes. Most communities have local school health problems which warrant considerable study, for example, an unusually high percentage of undernourished children.

Budgets should be planned on the basis of a certain expenditure per school child, rather than on the per capita[1] (per citizen of the community) or percentage of budget plan, since the first method makes definite provision for each school child. The per capita plan does not take into account the number of children who need the health supervision. The percentage of budget method would show marked variation in the provision per child between a city with a liberal budget for education and one with a parsimonious budget.

[1] In "Health Service in City Schools of the United States," a Report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, published in 1922, the term "cost per capita" is used to indicate *cost per pupil*.

CHAPTER VI

THE PROGRAM OF WEIGHING AND MEASURING

Weighing and measuring pupils in school:

1. Is the easiest and most accurate method of following closely each pupil's health between health examinations;

2. Is a definite index of each child's progress from week to week or period to period, such as month to month;

3. Reveals sudden changes in weight, which may be the early indication of health disturbance or actual disease process;

4. Makes possible comparison of a child with others of his height and age;

5. Interests children in their own health.

How often should a school child be weighed and measured? Weight should be determined every month, at least, if a child is believed to be normal; more frequently, usually once a week, if the child's health is not normal, as in cases of malnutrition.

Height should be measured every three months.

Findings should be compared with the normal for the age, as found by means of the tables on pp. 81, 82, and 83.

Who shall weigh? Weighing can be done by the classroom teacher, the instructor in physical education, the school nurse, or special workers. A properly supervised group of "social buds" or a woman's club could undertake school weighing as part of their work for the public welfare.

If weighing and measuring is to be fully successful, it must be done by interested persons, who should use a standard technic. There is too much tendency among weighers not to check results but to "hurry and get it over with." The findings are more valuable if one person does the work on a given group over the school year. Hence, the classroom teacher is the most desirable person to do the weighing.

Scales. One scale costs from twenty-five to forty dollars. One scale is usually ample for a school up to twenty-five rooms, allowing each classroom one day per month for its use. Keep the scale in one spot because moving throws scales out of adjustment. Always test the scale before using, and adjust it to balance at zero pounds.

How to weigh. Directions are usually printed on classroom weight charts. The following method is used in the Horace Mann School, New York City.

Suggestions for Weighing Used in Horace Mann School

1. Be sure the scale is balanced each period before beginning to weigh and that no coats and books are hanging near the scale. This necessitates each group reporting *promptly* a few minutes before the time scheduled.

WEIGHT—HEIGHT—AGE TABLE FOR GIRLS FROM BIRTH TO SCHOOL AGE

Height (Inches)	Average Weight for Height (Pounds)	1 mo.	3 mos.	6 mos.	9 mos.	12 mos.	18 mos.	24 mos.	30 mos.	36 mos.	48 mos.	60 mos.	72 mos.
20	8	8											
21	9	9	10										
22	10½	10	11										
23	12	11	12	13									
24	13½	12	13	14	14								
25	15	13	14	15	15								
26	16½		15	16	17	17							
27	17½		16	17	18	18							
28	19			19	19	19	19						
29	20			19	20	20	20						
30	21½			21	21	21	21	21					
31	22½				22	22	23	23	23				
32	24					23	24	24	24	25			
33	25						25	25	25	26			
34	26½						26	26	26	27			
35	29						29	29	29	29	29		
36	30							30	30	30	30	31	
37	31½							31	31	31	31	32	
38	32½								33	33	33	33	
39	34								34	34	34	34	34
40	35½									35	36	36	36
41	37½										37	37	37
42	39										39	39	39
43	41										40	41	41
44	42½											42	42
45	45												45
46	47½												47
47	50												50
48	52½												52

NOTES:
1. Weight is stated to the nearest pound; height to the nearest inch; age to the nearest month.
2. Up to and including 34 inches the *weights are net.* Above this the following amounts have been added for clothing (shoes and sweaters are not included):
   35 to 39 in. 1 pound
   40 to 44 in. 1½ pounds.
   45 to 49 in. 1¾ pounds.

WEIGHT—HEIGHT—AGE TABLE FOR BOYS FROM BIRTH TO SCHOOL AGE

Height (inches)	Average weight for Height (Pounds)	1 mo.	3 mos.	6 mos.	9 mos.	12 mos.	18 mos.	24 mos.	30 mos.	36 mos.	48 mos.	60 mos.	72 mos.
20	8	8											
21	9½	9	10										
22	10½	10	11										
23	12	11	12	13									
24	13½	12	13	14									
25	15	13	14	15	16								
26	16½		15	17	17	18							
27	18		16	18	18	19							
28	19½			19	19	20	20						
29	20½			20	21	21	21						
30	22			22	22	22	22	22					
31	23				23	23	23	23	24				
32	24½				24	24	24	25	25				
33	26					26	26	26	26	26			
34	27						27	27	27	27			
35	29½						29	29	29	29	29		
36	31							30	31	31	31		
37	32							32	32	32	32	32	
38	33½								33	33	33	34	
39	35								35	35	35	35	
40	36½									36	36	36	36
41	38										38	38	38
42	39½										39	39	39
43	41½										41	41	41
44	43½											43	43
45	45½											45	45
46	48												48
47	50												50
48	52½												52
49	55												55

NOTES:
1. Weight is stated to the nearest pound; height to the nearest inch; age to the nearest birthday.
2. Up to and including 34 inches the *weights are net.* Above this the following amounts have been added for clothing (shoes, coats and sweaters are not included):
   35 to 39 in. 1½ pounds
   40 to 44 in. 1½ pounds
   45 to 49 in. 1¾ pounds.

FIG. 5. The Woodbury tables.

WEIGHT—HEIGHT—AGE TABLE FOR GIRLS OF SCHOOL AGE

Height (inches)	Average weight for height (lbs.)	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years	11 Years	12 Years	13 Years	14 Years	15 Years	16 Years	17 Years	18 Years	Height (inches)
38	33	33	33													38
39	34	34	34													39
40	36	36	36	36*												40
41	37	37	37	37*												41
42	39	39	39	39*												42
43	41	41	41	41	41*											43
44	42	42	42	42	42*											44
45	45	45	45	45	45	45*										45
46	47	47*	47	47	48	48*										46
47	50	49*	50	50	50	50	50*									47
48	52		52	52	52	52	53*	53*								48
49	55		54	54	55	55	56	56*								49
50	58		56*	56	57	58	59	61	62*							50
51	61			59	60	61	61	63	65							51
52	64			63*	64	64	64	65	67							52
53	68			66*	67	67	68	68	69	71*						53
54	71				69	70	70	71	71	73*						54
55	75				72*	74	74	74	75	77	78*	-				55
56	79					76	78	78	79	81	83*					56
57	84					80*	82	82	82	84	88	92*				57
58	89						84	86	86	88	93	96*	101*			58
59	95						87	90	90	92	96	100	103*	104*		59
60	101						91*	95	95	97	101	105	108	109	111*	60
61	108							99	100	101	105	108	112	113	116	61
62	114							104*	105	106	109	113	115	117	118	62
63	118								110	110	112	116	117	119	120	63
64	121								114*	115	117	119	120	122	123	64
65	125								118*	120	121	122	123	125	126	65
66	129									124	124	125	128	129	130	66
67	133									128*	130	131	133	133	135	67
68	138									131*	133	135	136	138	138	68
69	142										135*	137*	138*	140*	142*	69
70	144										136*	138*	140*	142*	144*	70
71	145										138*	140*	142*	144*	145*	71

Age-Years		6	7	8	9	10	11	12	13	14	15	16	17	18
Average Height (inches)	Short	43	45	47	49	50	52	54	57	59	60	61	61	61
	Medium	45	47	50	52	54	56	58	60	62	63	64	64	64
	Tall	47	50	53	55	57	59	62	64	66	66	67	67	67
Average Annual Gain (lbs.)	Short	4	4	4	5	6	6	10	13	10	7	2	1	
	Medium	5	5	6	7	8	10	13	10	6	4	3	1	
	Tall	6	8	8	9	11	13	9	8	4	4	1	1	

WEIGHT—HEIGHT—AGE TABLE FOR BOYS OF SCHOOL AGE

Height (inches)	Average weight for height (lbs.)	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years	11 Years	12 Years	13 Years	14 Years	15 Years	16 Years	17 Years	18 Years	19 Years	Height (inches)
38	34	34	34*														38
39	35	35	35														39
40	36	36	36*														40
41	38	38	38	38*													41
42	39	39	39	39*	39*												42
43	41	41	41	41*	41*												43
44	44	44	44	44	44*												44
45	46	46	46	46	46*	46*											45
46	48	47*	48	48	48	48*											46
47	50	49*	50	50	50	50*	50*										47
48	53		52	53	53	53	53*										48
49	55		55	55	55	55	55	55*									49
50	58		57*	58	58	58	58	58*	58*								50
51	61			61	61	61	61	61	61*								51
52	64			63	64	64	64	64	64	64*							52
53	68			66*	67	67	67	67	68	68*							53
54	71				70	70	70	70	71	71	72*						54
55	74				72*	72	73	73	74	74	74*						55
56	78				75*	76	77	77	77	78	78	80*					56
57	82					79*	80	81	81	82	83	83*					57
58	85					83*	84	84	85	85	86	87					58
59	89						87	88	89	89	90	90	90				59
60	94						91*	92	92	93	94	95	96				60
61	99							95	96	97	99	100	103	106*			61
62	104							100*	101	102	103	104	107	111	116*		62
63	111							105*	106	107	108	110	113	118	123	127*	63
64	117								109	111	113	115	117	121	126	130*	64
65	123								114*	117	118	120	122	127	131	134	65
66	129									119	122	125	128	132	136	139	66
67	133									124*	128	130	134	136	139	142	67
68	139										134	134	137	141	143	147	68
69	144										137	139	143	146	149	152	69
70	147										143	144	145	148	151	155	70
71	152										148*	150	151	152	154	159	71
72	157											153	155	156	158	163	72
73	163											157*	160	162	164	167	73
74	169											160*	164	168	170	171	74

Age—years		6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Average height (inches)	Short	43	45	47	49	51	53	54	56	58	60	62	64	65	65	
	Medium	46	48	50	52	54	56	58	60	63	65	67	68	69	69	
	Tall	49	51	53	55	57	59	61	64	67	70	72	72	73	73	
Average annual gain (lbs.)	Short	3	4	5	5	5	4	8	9	11	14	13	7	3		
	Medium	4	5	6	6	6	7	9	11	15	11	8	4	3		
	Tall	5	7	7	7	7	8	12	16	11	9	7	3	4		

FIG. 6. The Baldwin-Wood tables.

2. Be sure you know just how to read the scale, what each division stands for. Use ¼ lb. for the unit. Do not try to estimate ⅛ or 1/16 lb. but weigh to the nearest quarter of a pound.

3. Be sure the large weight fits in the grove: that it is not a little to one side of the mark.

4. Be sure children remove shoes, sweaters, coats (if the child has no waist on underneath sweater, do not ask him to remove coat).

5. See that no child stands near enough to the scale to touch scale or child who is being weighed.

6. See that child does not put hand on any part of scale while he is being weighed.

7. See that the child being weighed, stands in the middle of the scale platform and keeps as quiet as possible.

8. Practice weighing, bearing these points in mind, *before* the first weighing period.

Suggestions for Measuring

1. Be sure you know how to read the scale on the stadiometer: what each subdivision stands for.

2. See that the child is measured in stocking feet.

3. See that the child stands with heels, buttocks, shoulders, and back of head against the upright measuring rod, and looks straight ahead, so that the top of his head is on a horizontal line. This position can not be assumed perfectly when measuring rods are attached to scales, because of the depression between the scale platform and the upright rod.

4. Young children dislike standing erect for more than a moment. Hence, work with them must be rapid (but accurate).

5. See that hair ribbons which interfere, are removed.

Height should be taken in September.....January.....May, at the same time that the weight is taken.

DEPARTMENT OF CORRECTIVE PHYSICAL EDUCATION

LOS ANGELES CITY SCHOOL DISTRICT
NUTRITION DIVISION

SUGGESTIONS FOR USE OF HEIGHT—WEIGHT RECORD

1. **Record Blanks** prepared in advance.
2. Date of weighing at top of sheet.
3. Boys on one sheet, girls on another.
4. Class Room or Grade grouping.
5. Age in years at last birthday.
6. Birthday—month and day of month
7. Height in inches and quarters. Taken without shoes. Do not include hair ribbons, pompadors, etc. If measuring height by means of rod on scales be sure the mechanics is understood. Rods differ in reading and with some, distance is measured from floor and not from scale platform. A new tape may be used (72″ length is best). If shorter tape is used tack lower end 10″, 20″, 30″ from floor. By adding 10″, 20″, 30″ to the figure read off on the tape, the correct height is readily found. Have child take erect position, with knees straight, heels together and flat on floor against wall.
8. Weight in pounds and quaters. Taken without shoes, heavy coats and sweaters. Pockets should be emptied of marbles, etc.
9. Scales should be in good working order and correctly balanced. Be sure that the one who does the weighing understands reading of the scales to be used.
10. While height and weight is being recorded do not try to compute average weight, number of pounds underweight, etc. Do this at later time.

Fig. 7. Simple, concise directions on a form 5½″ × 8½″.

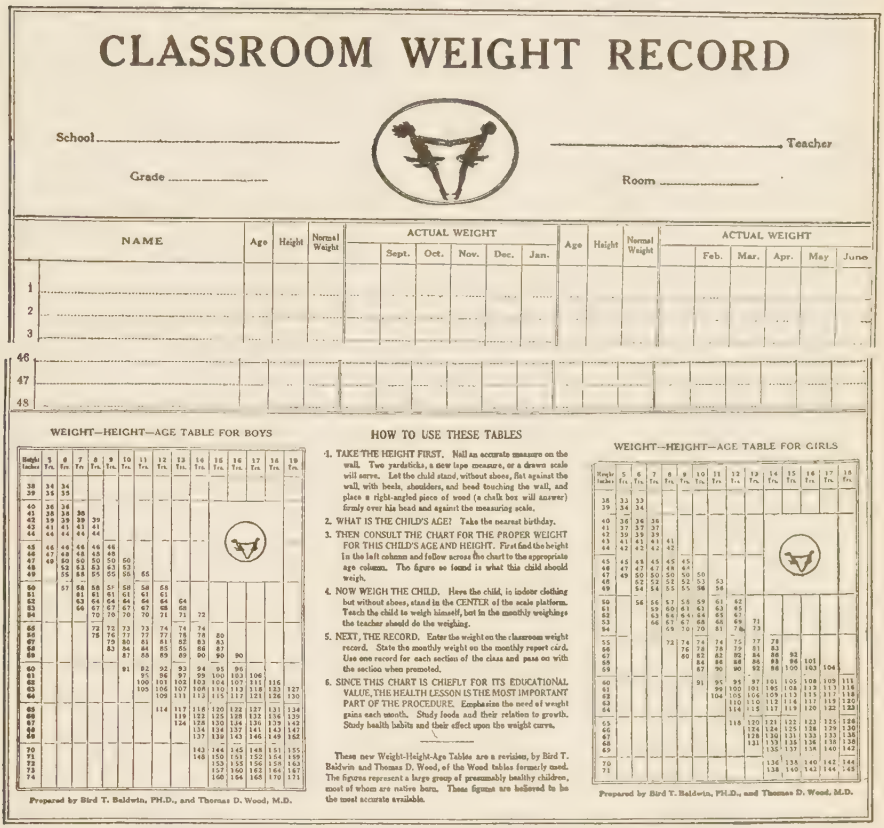

CLASSROOM WEIGHT RECORD
School
Teacher
Grade
Room
NAME
Age
Height
Normal Weight
ACTUAL WEIGHT
Sept.
Oct.
Nov.
Dec.
Jan.
Feb.
Mar.
Apr.
May
June
WEIGHT—HEIGHT—AGE TABLE FOR BOYS
HOW TO USE THESE TABLES
1. TAKE THE HEIGHT FIRST. Nail an accurate measure on the wall. Two yardsticks, a new tape measure, or a drawn scale will serve. Let the child stand, without shoes, flat against the wall, with heels, shoulders, and head touching the wall, and place a right-angled piece of wood (a chalk box will answer) firmly over his head and against the measuring scale.
2. WHAT IS THE CHILD'S AGE? Take the nearest birthday.
3. THEN CONSULT THE CHART FOR THE PROPER WEIGHT FOR THIS CHILD'S AGE AND HEIGHT. First find the height in the left column and follow across the chart to the appropriate age column. The figure so found is what this child should weigh.
4. NOW WEIGH THE CHILD. Have the child, in indoor clothing but without shoes, stand in the CENTER of the scale platform. Teach the child to weigh himself, but in the monthly weighings the teacher should do the weighing.
5. NEXT, THE RECORD. Enter the weight on the classroom weight record. State the monthly weight on the monthly report card. Use one record for each section of the class and pass on with the section when promoted.
6. SINCE THIS CHART IS CHIEFLY FOR ITS EDUCATIONAL VALUE, THE HEALTH LESSON IS THE MOST IMPORTANT PART OF THE PROCEDURE. Emphasize the need of weight gains each month. Study foods and their relation to growth. Study health habits and their effect upon the weight curve.
These new Weight-Height-Age Tables are a revision, by Bird T. Baldwin and Thomas D. Wood, of the Wood tables formerly used. The figures represent a large group of presumably healthy children, most of whom are native born. These figures are believed to be the most accurate available.
Prepared by Bird T. Baldwin, PH.D., and Thomas D. Wood, M.D.
WEIGHT—HEIGHT—AGE TABLE FOR GIRLS
Prepared by Bird T. Baldwin, PH.D., and Thomas D. Wood, M.D.
Published by DEPARTMENT OF THE INTERIOR, BUREAU OF EDUCATION, Washington, D. C.

FIG. 8. Classroom weight record for forty-eight pupils. Size is $12\frac{1}{2} \times 24''$. Cost from one cent to five cents each. Also published by the American Child Health Association.

For special studies of height, the height-age tables devised by Dr. W. T. Porter[1] are helpful. His figures were obtained by measuring Boston school children. A special table is provided to allow corrections for height of heels of shoes. Reprints may be obtained from Dr. W. T. Porter, Harvard Medical School, Boston, Mass.

Plan for identification of pupils who have not been weighed. Put on each child a button which is removed from the child after he is weighed. Then the teacher will not have to ask, "Who hasn't been weighed yet?" This plan is useful when the teacher does not do the weighing, but sends small groups of children from the rooms, as they are needed by the persons who are doing the weighing.

Method of Calculation of Normal Weight (Strang)

Date of birth is given on the classroom weight record sheet. Find age in years and months, days may be disregarded, if less than 15, 15 or over = 1 more month.

Example I.
Date of birth—July 4, 1915
Date used to compute age—October 10, 1924
October—10th month
July—7th month

10	1924
7	1915
3	9

Age = 9 years, 3 months
Age is written in column of class room record marked age 9–3.
Example II.
Date of birth—July 16, 1915
Date used to compute age—October 18, 1924
October—10 month − 1 = 11
July = 7th month − 1 = 8

11	1924
8	1915
3	9

Age = 9 years, 3 months

Use the date in which you weigh for the computation of age. It will be after the fifteenth, so October will then be counted as the 11th month, as in Example II.

Age used in finding normal weight is age of nearest birthday

9 years 5 months or less = 9 years
9 years 6 months or more = 10 years

Height = 60.4 inches − 60 inches
60.5 inches = 61 inches

[1] Porter, W. T.: Percentile Charts of the Height and Weight of Boston School Children and the Heels of Boston School Children, Boston Medical and Surgical Journal, Vol. 188, No. 17, pp. 639–644, Apr. 26, 1923.

Having the age and height, look up normal weight on height-weight-age table. Put normal weight in column on chart.

To find percent over or under table weight. Find the difference between actual and normal. Divide the difference by the normal weight. If the actual weight is less than the normal weight label the percent "—". If more than the normal, label the "—".

Example.
Actual weight = 64 lbs.
Normal weight = 72 lbs.

$$\begin{array}{r} 72 \\ 64 \\ \hline 8 \end{array}$$

$8 \div 72 = 11$ percent

Information[1] to Be Given to Grade Teachers with Weight Charts

Ten to fifteen percent over the table weight is a good investment for growing children. Twenty percent or more over-table-weight child probably needs to take more exercise (if there is no physical defect such as weak heart) and eat less sweets. Holt: "Overweight children are apt to be indolent in their habits, get too little exercise, and eat too much, especially of sweets."

Seven percent or more under the table weight needs special attention. Any physical defects should be corrected. Does the child habitually have the following:

Sleep, 5–7 years—11–12 hours.
8–11 years—10–11 hours.
Rest, 15 minutes after meals and 1 hour in afternoon.
Fresh air and sunlight, as much as possible. Outdoors playing every afternoon, Saturday and Sunday.
Food, 1 quart of milk a day.
3 regular meals and mid-morning or afternoon lunch of milk, crackers or bread. Nothing between meals.
Fruit every day.
Two or more vegetables, one a green vegetable every day.
Food habits. Happy while eating.
Allows a definite time—½ hour or more for each meal, so there is no haste in eating.
Chew food thoroughly.
Periods of relaxation in school, when children are listening wholeheartedly to a story, for example.
Emotional background, cheerful atmosphere.
Avoid strong emotions of fear, anger, over excitement.
Weight is not the only index of good nutrition. Other signs of good nutrition are:

1. Good color of skin.
2. Lustre of eyes.
3. Condition of hair and nails.
4. Absence of fatigue circles and hollows under the eyes.
5. Flesh firm.
6. Posture and carriage good and step elastic.
7. In temperament and attitude cheerful, optimistic and interested.
8. Enjoys activity, mental and physical.

[1] Devised for use in the Horace Mann School.

Care should be taken not to worry the child about his weight. Dr. Healy mentions a case where a child was given an inferiority complex by a teacher telling her about being underweight in such a way as to make her feel she was abnormal. It is better to emphasize the positive side: "If you gain normally, you'll feel more like working and playing, will not get tired so easily, and will probably feel happier." Regular gain in weight and height is a sign of good physical condition in all young growing animals.[1]

What is meant by underweight and by overweight? There is much confusion over the meaning of these terms. The word "underweight" is considered popularly to be synonymous with malnutrition. This is incorrect. The term "overweight" is equally misunderstood and misinterpreted. The following standardization of terms is proposed:

1. In no case are the terms underweight, normal weight, or overweight to be considered synonymous with any terms meaning states of health or nutrition, such as malnutrition.

2. Underweight is to mean any weight which is less than the table figure.

3. Standard weight or table weight is to mean the exact figure stated in the height-weight-age table.

4. Overweight is to mean any weight which is greater than the table figure.

Several new terms are proposed to describe conditions previously given various names, which have been used incorrectly or vaguely:

1. "*Normal range*" or "*health-weight*" is a range of weight between under-health-weight and over-health-weight.

2. "*Under-health-weight*" is to mean weight which is at least seven percent or ten percent below the standard table weight. Since authorities differ as to the borderline at which "under-health-weight" begins, this borderline is given at either seven percent or ten percent below the standard weight. The authors believe that the actual borderline is somewhere between seven and ten percent but that neither is the true figure. In addition to being below the borderline, "under-health-weight" is to be considered to be such a state of under-table-weight in an individual who shows signs of malnutrition or other health defects.

3. *Over-health-weight* is to mean weight which is:
   15 percent above the table weight in high school pupils;
   20 percent above the table weight in elementary school pupils and younger children.

This new terminology will enable the health worker to show a definite relationship between health and weight in cases where such relationship exists.

Certain variations from standard table weight occur:

1. Healthier children are generally found in the upper portion of the normal range, unless racial or familial reasons place them elsewhere.

[1] **Note.** The reader should notice the positive approach used in this material. Where feasible, avoid the negative approach, which is not in keeping with present theories of health education.

2. Racial or familial reasons may place healthy children in the lower or upper portions of the normal range. Sometimes no physical or hereditary reason can be found to explain such variations. Watch such cases carefully.

3. Seasonal changes of weight occur. This fact is familiar to health workers who have studied classroom weight charts carefully. In interpreting such findings, the worker must keep in mind:

(*a*) Changes of clothing to suit weather conditions;
(*b*) Changes in degrees of physical activity;
(*c*) Changes in routine of living and in its regularity;
(*d*) The social class of the child. A child who has "run wild" on the streets all summer might be expected to gain weight when required to assume the more sedentary life in school. On the other hand, the child of the better social class may lose weight when he returns to school because he must readjust himself to strenuous mental effort after a summer of healthful, but not too strenuous vacation activities.

Some expected variations of table weight do not occur:

1. Within the normal range of weight will be found certain children with defects, such as diseased tonsils, where no drop in weight has yet occurred. This is because the individual has been able, as yet, to neutralize the toxic products resulting from the defect. Later such children drop out of the normal range, when the reaction from the defect has begun to injure health. It is not the presence of defects, but the effects or results of defects, which cause loss of weight or other symptoms.

Some changes in weight are highly significant:

1. A sudden change of weight, unexplained by reasons satisfactory to the physician, is considered an early indication of disease. The child with this sign, should have a thorough examination by a physician at the first possible moment. Such variations are missed for several months unless children are weighed at least every month.

The Value of Regular Weighing and Measuring

Regular weighing and measuring do not constitute an entire school health program, but they may be considered the firm foundation upon which such a program may rest. Everything considered, this method of following children's health, is the simplest, most economical, and reliable plan for determining frequently the physical welfare of school children, but weighing and measuring should be supplemented in all possible cases by comprehensive and regular health examinations.

INTERPRETATION OF HEIGHT-WEIGHT-AGE TABLES ON THE BASIS OF PHYSIQUE

Certain anthropometrists classify all individuals as short, medium and tall and interpret weight tables on this basis. Endocrinologists and anthropometrists sometimes classify individuals as "Linear Type" and "Lateral Type," although some individuals do not meet the standards of either type.

Mr. W. A. Stecher, Director of Physical Education in the Public Schools of Philadelphia states: "Common observation shows that the physique of children varies greatly. Although three children may be of the same age they may be of different height; the weight of the three may vary still more. We have, therefore, with the use of Dr. Baldwin's tables constructed a chart that is based upon the fact that the type or racial descent should determine what his height and weight should be at any given age. Also, that with age and type, there are normal variations in height, and that these affect weight."

"Our distribution chart, therefore, has three divisions based upon type. If the child is of the 'tall, slender type' it is measured according to the normal of this type; if it is of the 'short, stocky type,' or of the 'average type' we have on our chart the data that corresponds to these types."[1] Stecher considers ten percent under normal weight the danger line indicating the need for watchful care; and twenty percent over weight for height and type he considers the point where there is need for careful inquiry into the habits of such a child.

There have been various attempts to estimate and interpret the weight-index of health according to types of physique. One objection to this is that with an increase or a loss of weight, the individual may pass from one type of physique to another. It is increasingly apparent to the best scientific investigators, that any accurately and dependable classification *must* be based on *skeletal measurements. No satisfactory skeletal measurements for this purpose have yet been demonstrated.*

Therefore, in the opinion of the authors, such standards of weight, based on classification of physique are *neither scientific nor satisfactory.*

RELATION OF UNDERWEIGHT AND RAPID GROWTH

In an unpublished study of one year's registration of pupils in the school 3 years or more, in the Horace Mann Boys' High School, the school physician found from his records that many pupils who were ten percent underweight had gained two or three inches in height since the previous examination, if they had failed to gain weight properly during the interim; pupils who were seven percent underweight often had gained two or three inches in height two years previously. Those who had made such rapid gain in height three years previously, had practically compensated for it. This study was made of a group of healthy boys, in whom physical defects were carefully watched by the family physician as well as the school physician, and these defects were usually corrected as soon as possible after discovery.

RECORDS

Recording is made on individual or class charts, preferably both. Class charts often provide basic material for a health contest when stars are given for some definite accomplishment, such as reaching normal weight, and for maintaining it.

The most satisfactory record for quick appraisal of a child's progress is the individual plotted chart of the type of the Wood-Rowell Health and Growth Record (see page 171). In a nutrition or fresh-air group, such a record meets a long felt need.

[1] Report of the Division of Physical Education, for the year ending Aug. 31, 1924, Board of Public Education, School District of Philadelphia, pp. 34–35.

Record forms. Classroom Weight Chart (obtainable from the Government Printing Office, Washington, D. C.). Similar forms are published by the U. S. Public Health Service and by the American Child Health Association, 370 Seventh Ave., New York City.

Health report cards. A monthly report of the weight should be sent home. This may be part of the regular monthly home report or may be on a separate form.

On pages 92 to 98 are cards now in use.

Suggested follow up work. (1) Charts to be posted in classrooms accompanied by posters relating to the subject.

2. Cards to be sent home to parent at regular intervals.

3. Special talks to be given and occasional comments to be made when opportunity arises.

4. Worst cases referred to the Health Office; also cases of children slightly below normal weight, who have not gained in weight for two months.

RECORD[1] OF OTHER SIGNS OF MALNUTRITION

1. Color of Lips	1/2	
	2/2	
2. Fatigue circles Under Eyes	1/2	
	2/2	
3. Luster of Eyes	1/2	
	2/2	
4. Mouth Breathing	1/2	
	2/2	
5. Flabby Muscles	1/2	
	2/2	
6. Poor Posture (Stooping)	1/2	
	2/2	
7. Prominent (Abdomen)	1/2	
	2/2	
Restless	1/2	
8. Listless Timid Inattentive	2/2	
Temperament	1/2	
9. Not Cheerful Irritable	2/2	
General Estimate	1/2	
10. of Health Excellent Good, average, fair poor	2/2	
11. Those 7% or more under-weight	1/2	
	2/2	

1/2 ----- First Term
2/2 ----- Second Term

1. Use large sheet of stiff paper for the above columns, making columns as wide as chart permits.
2. Put (1) where symptom is very noticeable, (2) moderate, (3) slight
3. In posture column make note of any marked deviation.
4. Columns 8 and 9 are to be filled out by grade teacher.
5. Report in writing and marked changes in weight or other signs to Dr. Rowell. Report to contain
   a. Child's name
   b. Room number
   c. Grade
   d. Facts noted
   e. Your name.

[1] Horace Mann School. Once each semester the persons weighing the children make the studies indicated on the form. This is in addition to observations of teacher and physician.

HORACE MANN ELEMENTARY SCHOOL
HEIGHT AND WEIGHT REPORT

Name..... Grade..... Room.....

Parents are urged to note carefully this record which will be sent each quarter. Please sign and return it with the regular report. HENRY C. PEARSON, *Principal.*

HEIGHT AND WEIGHT RECORD

	FIRST YEAR 192 to 192				SECOND YEAR 192 to 192			
	HEIGHT	STANDARD WEIGHT	ACTUAL WEIGHT	%	HEIGHT	*STANDARD WEIGHT	ACTUAL WEIGHT	%
Oct.								
Nov.								
Dec.								
Jan.								
Feb.								
March								
April								
May								

Ranges of Weight

NORMAL may range from 10% above standard to 7% below.
IDEAL probably 5%-10% above.
NEEDING ATTENTION, 7%-10% below.
*DEFINITELY UNDERWEIGHT, 10% and more below.
*OVERWEIGHT, 20% and more above.
* Examination by family physician is suggested.

Other Signs of Malnutrition

1. Skin, of poor color.
2. Fatigue circles under eyes.
3. Posture poor as shown by stooping shoulders, prominent abdomen, general poor carriage.
4. Flesh, not firm.
5. Attitude, not cheerful and optimistic but nervous and apprehensive.
6. Unusual exhaustion by customary activities.

ABOUT WHAT SHOULD BE GAINED EACH MONTH

Age	Boy	Girl	Age	Boy	Girl	Age	Boy	Girl
3 yrs.	6 oz.	5 oz	8 yrs.	6 oz.	8 oz	13 yrs.	14 oz.	16 oz
4 yrs.	5 oz.	4 oz.	9 yrs.	7 oz.	8 oz.	14 yrs.	13 oz.	15 oz.
5 yrs.	5 oz.	6 oz.	10 yrs.	9 oz.	10 oz.	15 yrs.	15 oz.	11 oz
6 yrs.	7 oz.	6 oz.	11 yrs.	8 oz.	9 oz.	16 yrs.	15 oz	7 oz.
7 yrs.	7 oz.	7 oz.	12 yrs.	6 oz.	13 oz.	17 yrs.	10 oz.	2 oz

SOME IMPORTANT FACTORS FAVORABLY INFLUENCING THE CHILD'S HEALTH AND NUTRITION

1. A DIET ADEQUATE IN EVERY RESPECT
   (a) Sufficient in amount.
   (b) Suitable in type—Especially important are milk and green vegetables daily.
   (c) Easy to digest.
   (d) Slowly eaten at regular mealtimes.
2. ABSENCE OF PHYSICAL DEFECTS
3. FREEDOM FROM FATIGUE
   (a) Physical or mental.
   Fatigue is often due to excessive activities scheduled outside of school hours, and especially to insufficient sleep.

HOURS OF SLEEP

Age	Should be in Bed by	Needed in Each 24 Hours	
3 and 4	6:00 or 6:30	14+hours	(including nap)
5 and 6	6:30 or 7:00	13½ hours	(including nap)
7 and 8	7:00 or 7:30	12 hours	
9 and 10	7:30 or 8:00	11½ hours	
11 and 12	8:00 or 8:30	11 hours	
13 and 14	8:30 or 9:00	10½ hours	
15 and 16	9:00 or 9:30	10 hours	
17 and 18	9:30 or 10:00	9½ hours	

The earlier hours should be insisted upon for those who are decidedly underweight, or for those who are nervous, excitable, and generally too tense.

HUGH GRANT ROWELL, M.D., *School Physician.*

SIGNATURE OF PARENT OR GUARDIAN

	192 to 192	192 to 192
December		
February		
April		
June		

FIG. 9. A white card $3\frac{1}{2}'' \times 7\frac{1}{4}''$. Both sides are shown. Contains the information parents request and need.

Cleveland Heights Schools
Department of Physical Education

Health report of _____

School _____ Teacher _____

	Grade	Exact age in years, months	Height	Normal weight
Sept.				
June				

Report	Weight	Gain in weight per month				Remarks:
		GIRLS		BOYS		
1		5-8 years	6 oz.	5-8 years	6 oz.	
2		8-11 "	8 oz.	8-12 "	8 oz.	
3		11-14 "	12 oz.	12-16 "	16 oz.	
4		14-16 "	8 oz.	16-18 "	8 oz.	
5		16-18 "	4 oz.			
6						

Weight 10% under normal=underweight Weight 20% over normal=overweight

Hours of sleep required for different ages.

5-6	13 hours
6-8	12 hours
8-10	11½ hours
10-12	11 hours
12-14	10½ hours
14-16	10 hours
16-18	9½ hours

Two of these hours should be before midnight.

Please sign and return

_____

_____

_____

_____

_____

_____

FIG. 10. A yellow card 3½″ × 6″. Both sides shown. A smaller simpler form of the Horace Mann type.

NAME _____ SCHOOL _____

	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR	APR.	MAY	JUNE
HEIGHT										
STANDARD WEIGHT										
ACTUAL WEIGHT										
TO GAIN										

From 10% below to 15% above standard weight is satisfactory.

September Age 192

NEWTON PUBLIC SCHOOLS

The Rules of the Game

A full bath oftener than once a week.
Brushing the teeth at least once every day.
Sleeping long hours with windows open.
Drinking as much milk as possible, but no coffee or tea
Eating some vegetables or fruit every day.
Drinking at least four glasses of water a day.
Playing part of every day out of doors.
A bowel movement every morning.

Signature of Parent or Guardian

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

FIG. 11. A gray card 4″ × 6″. Both sides shown. Simple and satisfactory.

Lincoln Community High School
Health Department
MONTHLY REPORT

of _____

	Age.....	Height.....	Normal Weight	Actual Weight	
1st Month.....					
2d Month.....					
3d Month.....					
4th Month.....					

N. B.—The school nurse will gladly co-operate with the parents in correcting physical defects and rebuilding the health of the child.

_____
School Nurse.

(OVER)

Causes of Underweight

1. Insufficient nourishment.
2. Improper diet.
3. Use of tea or coffee.
4. Omission of milk, vegetables or cereals from diet.
5. Fast eating.
6. Irregular meals.
7. Practice of "piecing" between meals.
8. Excessive use of sweets.
9. Sleeping with closed windows.
10. Too little time spent in open air.
11. Over fatigue.
12. Late hours.
13. Insufficient rest.
14. Physical defects.
15. Irregular living.

Which of the above applies to **your** child?

_____
Teacher.

_____
School Nurse.

FIG. 12. A white card $3\frac{1}{2}'' \times 6\frac{1}{4}''$. Note the personal appeal to the parent.

STUDY THIS TABLE CAREFULLY

Perhaps You Think

Your child is not really ill, that his under-weight is not a cause for worry.

If his weight is habitually below 7% his condition is serious—It is time for you to act.

Table of average heights and weights of children, also showing weights 7% and 10% under weight for height.

BOYS

Height	Average weight for height	7 per cent. under weight	10 per cent. under weight
Inches	Pounds	Pounds	Pounds
*35	28.7	26.7	25.8
*36	30.0	27.9	27.0
*37	31.6	29.4	28.4
*38	33.2	30.9	29.9
39	36.3	33.8	32.7
40	38.1	35.4	34.3
41	39.8	37.0	35.8
42	41.7	38.8	37.5
43	43.5	40.5	39.2
44	45.4	42.2	40.9
45	47.1	43.8	42.4
46	49.5	46.0	44.6
47	51.4	47.8	46.3
48	53.0	49.3	47.7
49	55.4	51.5	49.9
50	59.6	55 4	53.6
51	62.5	58.1	56.3
52	65.8	61.1	59.2
53	68.9	64.1	60.0
54	72.0	67.0	64.8
55	75.4	70 1	67.9
56	79.2	73.7	71.3
57	82.8	77.0	74.5
58	87.0	80.9	78.3
59	91.1	84.7	82.0
60	95.2	88.5	85.7
61	99.3	92.3	89.4
62	103.8	96.5	93.4
63	108.0	100.4	97.2
64	114.7	106.7	103.2
65	121.8	113.3	109.6
66	127.8	118.9	115.0
67	132.6	123.3	119.3
68	138.9	129.2	125.0

(Table prepared by Wm. R. P. Emerson, M. D., and printed courtesy Woman's Home Companion.)

*Without clothes.

Other weights are with indoor clothes but without shoes.

MEDICAL INSPECTION DEPARTMENT
NASHUA BOARD OF EDUCATION

THINGS THAT PREVENT GAIN IN WEIGHT

1. **TOO LITTLE FOOD:**
   Unless cereals and milk are included in the child's diet, it is next to impossible to bring it up to its proper food value.
2. **FAST EATING:**
   Bolting of food to hurry back to school or play—very harmful.
   (a) Chew food as long as there is taste left to it.
   (b) Do not drink and eat at the same time.
3. **DISEASED TONSILS AND ADENOIDS:**
   Children cannot breathe in sufficient amounts of fresh air, if obstructions in the breathing passage are present. Children gain more in weight and faster after they are removed.

DECAYED AND ACHING TEETH:
No child will have a good appetite, feel happy and gain in weight with such a handicap—make friends with the tooth-brush. Have sick teeth cleaned and filled; guard the first teeth as carefully as the permanent ones. Save the sixth year molar.

5. **TOO LITTLE TIME SPENT OUT OF DOORS:**
6. **INSUFFICIENT REST:**
7. **POORLY VENTILATED OR OVER-HEATED SLEEPING ROOMS:**
   Causing poor appetite for breakfast and languor.
8. **EYE STRAIN:**
   Causing nausea and loss of appetite.

	Height	Weight	Remarks
Sept.			
Oct.			
Nov.			
Dec.			
Jan.			
Feb.			
Mar.			
April			
May			
June			
July.			
Aug.			

A Boy Should Gain Each Month

AGE	ABOUT
5 to 8	6 oz.
8 to 12	8 oz.
12 to 14	12 oz.
14 to 16	16 oz.
16 to 18	8 oz.

FIG. 13. A white card 3″ × 7″. A *height-weight* card with table. Uses the "terror" type of approach. *Height-weight-age* tables similar to the above may now be obtained from the American Child Health Association (prepared by Dr. Merrill Champion).

STUDY THIS TABLE CAREFULLY

Perhaps You Think

Your child is not really ill, that his under-weight is not a cause for worry.

If his weight is habitually below 7% his condition is serious—It is time for you to act.

Table of average heights and weights of children, also showing weights 7% and 10% under weight for height.

GIRLS

Height	Average weight for height	7 per cent. under weight	10 per cent. under weight
Inches	Pounds	Pounds	Pounds
*35	28.6	26.6	25.7
*36	30.0	27.9	27.0
*37	31.5	29.3	28.4
*38	32.7	30.4	29.4
39	35.7	33.2	32.1
40	37.4	34.8	33.7
41	39.2	36.5	35.3
42	41.2	38.3	37.1
43	43.1	40 1	38 8
44	44.8	41.7	40.3
45	46.3	43.1	41.7
46	48.5	45.1	43.7
47	50.9	47 3	45.8
48	53.3	49.6	48.0
49	55.8	51.9	50.2
50	58.3	54 2	52.5
51	61.1	56.8	55.0
52	63 8	59.3	57.4
53	66 8	62.1	60.1
54	70.3	65.4	63.3
55	74.5	69 3	67.1
56	78.4	72.9	70.6
57	82.5	76.7	74.3
58	86 6	80.5	77.9
59	91.1	84.7	82.0
60	96.7	89.9	87.0
61	102.5	95.3	92.2
62	110.4	102.7	99.4
63	118.0	109.7	106.2
64	123.0	114.4	110.7
65	130.0	120.9	117.0
66	137.0	127.4	123 3
67	143.0	133.0	128.7
68	146.9	136.6	132.2

(Table prepared by Wm. R. P. Emerson, M. D., and printed courtesy Woman's Home Companion.)

*Without clothes.

Other weights are with indoor clothes but without shoes.

MEDICAL INSPECTION DEPARTMENT
NASHUA BOARD OF EDUCATION

THINGS THAT PREVENT GAIN IN WEIGHT

1. **TOO LITTLE FOOD:**
   Unless cereals and milk are included in the child's diet, it is next to impossible to bring it up to its proper food value.
2. **FAST EATING:**
   Bolting of food to hurry back to school or play—very harmful.
   (a) Chew food as long as there is taste left to it.
   (b) Do not drink and eat at the same time.
3. **DISEASED TONSILS AND ADENOIDS:**
   Children cannot breathe in sufficient amounts of fresh air, if obstructions in the breathing passage are present. Children gain more in weight and faster after they are removed.

DECAYED AND ACHING TEETH:
No child will have a good appetite, feel happy and gain in weight with such a handicap—make friends with the tooth-brush. Have sick teeth cleaned and filled; guard the first teeth as carefully as the permanent ones. Save the sixth year molar.

5. **TOO LITTLE TIME SPENT OUT OF DOORS:**
6. **INSUFFICIENT REST:**
7. **POORLY VENTILATED OR OVER-HEATED SLEEPING ROOMS:**
   Causing poor appetite for breakfast and languor.
8. **EYE STRAIN:**
   Causing nausea and loss of appetite.

	Height	Weight	Remarks
Sept.			
Oct.			
Nov.			
Dec.			
Jan.			
Feb.			
Mar.			
April			
May			
June			
July			
Aug.			

A Girl Should Gain Each Month

AGE	ABOUT
5 to 8	6 oz.
8 to 11	8 oz.
11 to 14	12 oz.
14 to 16	8 oz.
16 to 18	4 oz.

FIG. 14. Similar to Fig. 13 but for girls.

CHAPTER VII

CONTROL OF COMMUNICABLE DISEASE

The control of communicable disease is necessary in a school system: (1) because the occurrence of disease will be decreased, and lives will be saved; (2) because the health of the pupils is thereby improved markedly, for many avoid the dangers and discomforts of serious illnesses; (3) because attendance is likely to be increased thereby, especially if the possibility of epidemics is considered (in many states distribution of state educational funds is on the basis of percentage of attendance); (4) because the school is thus made safer for pupils and teachers alike; it avoids the danger of being a hot bed of infection in the community.

CONTROL OF RESPIRATORY INFECTIONS

Control of contagious disease is facilitated by control of the "Common Cold." It is probable that exclusion of children with early colds, in the stage when the nose is running watery material, and children with early coughs and sore throats, for a period of about three days, will not only lower the number of colds, but will decrease the actual cases of contagious disease arising from school contacts, and the attendance is likely to be improved by such a strict method. One city has a "Stay at Home with a Cold" campaign in its schools.

The common cold is dangerous not only because of its communicability but because, in its early stages, it can not always be distinguished from the prodromal stages of contagious disease. A short period of exclusion will remove the danger in either case. The idea is most successful if parents are taught to keep the child at home under such circumstances without sending the child to school in the hope that he can "get by" the inspection.

Both Sanford and Mason have shown that, in private schools, respiratory infections are the most common cause of school absences; that contagious diseases form the other really significant origin of poor attendance. In public schools, the infectious skin diseases are often a third major reason for absences.

Sanford's report[1] from St. Paul's School showed the following:

[1] Sanford C. H., The Causes of Absence in a Boys' School, American Journal of Diseases of Children, Vol. 25, No. 4, pp. 297–302, April, 1923.

AMOUNT OF TIME LOST AS A RESULT OF VARIOUS CAUSES

Cause	Amount of time lost								
	1919–1920			1920–1921			1921–1922		
	Cases	Days	Percent	Cases	Days	Percent	Cases	Days	Percent
Respiratory infections	282	2,060	2.27	150	855	0.91	349	2,277	2.39
Gastro-intestinal	38	82	0.09	72	204	0.21	73	219	0.23
Contagious	48	1,032	1.14	75	1,102	1.16	4	77	0.08
Miscellaneous	201	687	0.75	191	796	0.85	160	539	0.57
Total	570	3,861	4.26	488	2,957	3.15	586	3,112	3.24
Total possible attendance	...	90,440	....	...	93,852	....	...	95,274	.

Mason's[1] figures from the Lincoln School are:

PERCENT OF DAYS LOST, AND CAUSES THEREFOR

Causes	1917–1918		1918–1919		1919–1920		1920–1921		1921–1922	
	Days lost	Percent	Days lost	Percent	Days lost	Percent	Days lost	Percent	Days lost	Percent
Not ill	717	6.0	1,134	4.0	512	1.5	506	1.5	493	1.3
Respiratory	282	2.3	990	3.5	1,818	5.5	1,430	4.2	2,117	5.6
Influenza	96	0.8	679	2.4	247	0.8	15	0.04		
Contagious diseases	651	5.4	648	2.3	629	1.9	431	1.3	220	0.6
Other conditions	28	0.2	200	0.7	568	1.7	590	1.6	701	1.8
Total absences	1,774	14.9	3,651	13.0	3,774	11.5	2,972	8.6	3,531	9.3
Possible total absences	11,858	....	27,990	....	32,572	....	34,189	....	37,740	..

In New York City at a meeting in May, 1925 of the "School Physicians' Association" (composed of representatives from such schools as the Horace Mann School, Riverdale County School, Lawrenceville, St. Paul's School of Concord, N. H., the Lincoln School) it was shown by Dr. Haven Emerson from statistics supplied by members of the association that respiratory infections caused from 35 percent to 100 percent of the days' absences.

The control of communicable disease involves:

1. The exclusion of children with certain suspicious signs;
2. Readmission after essential requirements have been fulfilled.

The following steps are necessary:

1. Examination of the child by the parent or other suitable person at the home before the child is sent to school.
2. Morning health inspection in the classroom by the teacher.
3. For further action, suspicious cases are referred by the teacher to a designated authority, or if there is no other authority, the teacher is empowered to act.

[1] Mason, H. H.: Health and Regularity of School Attendance, Teachers College Record, Vol. XXIV, No. 1, Jan., 1923, p. 29. See also Mason, H. H. and Howell, J. T.: Health and Regularity of School attendance, Monthly Bulletin of the Department of Health, City of New York, Vol. XVI, No. 10, Dec., 1925, pp. 146–156.

4. Parents are notified of the exclusion of the pupil and are sometimes given suggestions as to how to get the child back in school as soon as possible.

5. Examination and readmission of pupils when requirements have been fulfilled.

HOME EXAMINATION

The parent fails in duty when an inspection has not been made at the home before the child is sent to school. "To avoid trouble, it is not enough that the child go to school properly and cleanly clad; the parent should make a definite and thorough examination before permitting him to leave the home. He should always be kept at home where there is nausea, vomiting, chills, convulsion, dizziness, faintness, unusual pallor, rash of any kind, rise of temperature or suggestion of it through unusual warmth of skin, a discharge from nose, redness of or secretion from the eyes, a sore or inflamed throat, swollen glands in the neck or elsewhere, a cough, failure to eat breakfast, a disturbed night's rest, or any unexplained or indefinite change from the usual appearance or conduct."

Simple directions supplied the home are useful and should contain a list of symptoms and signs to regard as suspicious and which would warrant keeping the pupil at home till further developments took place. This is practical in a residential district but in an industrial section where both parents work outside the home, it is almost impossible to accomplish. Wood's booklet, "The School Child" in the National Health[1] Series is available for all and contains such a list of symptoms, as does the "Gray Book" published by the Parent-teachers Association of the Horace Mann School. Wood[2] suggests to parents that the signs mentioned be considered sufficient reason for keeping a child away from school for at least 24 hours.

Below is a form to send to parents:

For Parents

Indications of Health Disorders in Children

for which parents should keep children at home and notify the school.

Nausea
Vomiting
Chill or convulsions (fits)
Dizziness, faintness or unusual pallor
Eruption (rash) of any kind
Fever
Running nose
Red or running eyes
Sore or inflamed throat
Acutely swollen glands in neck
Cough
Failure to eat the usual breakfast
Any distinct change from usual appearance and conduct of child.

Thomas D. Wood, M.D.
Teachers College,
Columbia University, New York City

[1] Published by Funk and Wagnalls Company, New York City.

[2] The authors of this volume have collaborated in "Health Through Prevention of Disease," published by the World Book Company, Yonkers, N. Y. This book contains over a hundred pages of information on contagious disease control and is of interest to parents and educators as well as health workers.

Parents should be expected to familiarize themselves with the health rules of the school and should make special effort to acquaint the school with any illnesses in their family which might have a definite bearing on a pupil's school attendance. Whenever a pupil is excluded the parents should be sure that they secure correct information regarding requirements which must be fulfilled before the pupil can return to school. By this means parents will greatly lessen the burden of returning, for the pupil, for the school, and for themselves.

FUNCTION OF PUPILS IN DISEASE CONTROL

These functions are of two types:

1. Those positive functions which are attributed to a good citizen, such as a sense of responsibility for the pupil's own health and the health of his fellows and, as a result of this feeling of responsibility, a desire to live up to the school's health laws and to see that his fellow pupils do likewise. This development of a social conscience must be encouraged by the school.

2. Coöperation in the morning examinations:

(*A*) In the home, where the young child will inform his parent if he feels ill; and where the pupil of high school age will perform his own home morning health inspection and report to his parents whether or not he is able to attend school, and if not, why not.

(*B*) By facilitating the classroom morning examinations. It is possible to train pupils to perform many movements which would otherwise have to be made by the examiner, such as placing himself in good light for examination, everting the lower eyelids, opening the mouth wide enough so that the throat can be seen easily (thus avoiding the use of the tongue depressor).

CLASSROOM MORNING INSPECTION

The function of the various members of the school personnel in daily inspection must be clearly understood and each person should have well-defined duties with well-defined limits.

Function of the Teacher

In morning inspection the teacher makes a diagnosis of health or ill health.

Health diagnosis is really not diagnosis at all, from the medical point of view. It is a recognition of the normal, and normal variations, whereas medical diagnosis deals with abnormal variations which are named diseases or health defects depending on their severity and other characteristics. The teacher has to decide (1) whether a pupil is in normal health for that individual child and (2) if the child is at that time, and has been a normal child. The first may be called acute variations from normal; and the second type, chronic, when abnormal signs exist.

The teacher is the person who is primarily responsible for keeping contagious and infectious disease out of her classroom. This means that she must learn suspicious signs of such diseases, preferably in her training institu-

BOARD OF EDUCATION
THE CITY OF NEW YORK
DEPARTMENT OF PHYSICAL TRAINING AND HYGIENE

DAILY MORNING INSPECTION

DIRECTIONS

I **CLASS INSPECTION** (Sweaters and rubbers should not be worn)

Make a rapid general survey of the class from the front of the room for:

SYMPTOMS OF ILLNESS

(See Course of Study and Syllabus on Hygiene)

1. CLOTHING AND HAIR

Note cleanliness and order of blouse, tie, collar, dress, hair ribbon, and hair.

2. HANDKERCHIEFS

Children raise right hands with handkerchiefs in palms.
Note presence and cleanliness of handkerchief.

3. SHOES

Children face windows with feet in aisle. Note condition of shoes and stockings.

4. TEETH

How many used a toothbrush this morning? Last night?
How many own individual tooth-brushes?
(This question may be omitted as soon as all children have brushes.)

II **INDIVIDUAL INSPECTION** (Sleeves rolled up)

HYGIENE POSITION. ROW ONE! (THEN ROW TWO! etc.)

a. Extend head backward and turn face from the light.
b. Draw down the collar with hand nearest the window.
Keep elbow at side with fingers fully extended.
c. Place other hand over the head and draw up hair, above and behind the ear. (Girls)
d. Display teeth and gums. (SMILE !)

While children are in position, the teacher makes a closer inspection for symptoms of illness, and inspects for cleanliness of: (5) Hands and arms, (6) Finger nails, (7) Nail biting, (8) Teeth, (9) Face, neck and ears, (10) Head, and mentions any defects as they are discovered. Use tact. At least once a week the class in the "Hygiene Position" files past the teacher, who stands near the window to observe the condition of the heads more closely.

III **HEALTH OFFICER**

Records results on Morning Inspection Chart.

NOTE.

A signal announces the arrival in the school of the doctor or nurse when all contagious or suspicious cases and children who show evidences of extreme neglect are sent to the doctor's office for examination and exclusion, or home visits, if necessary.

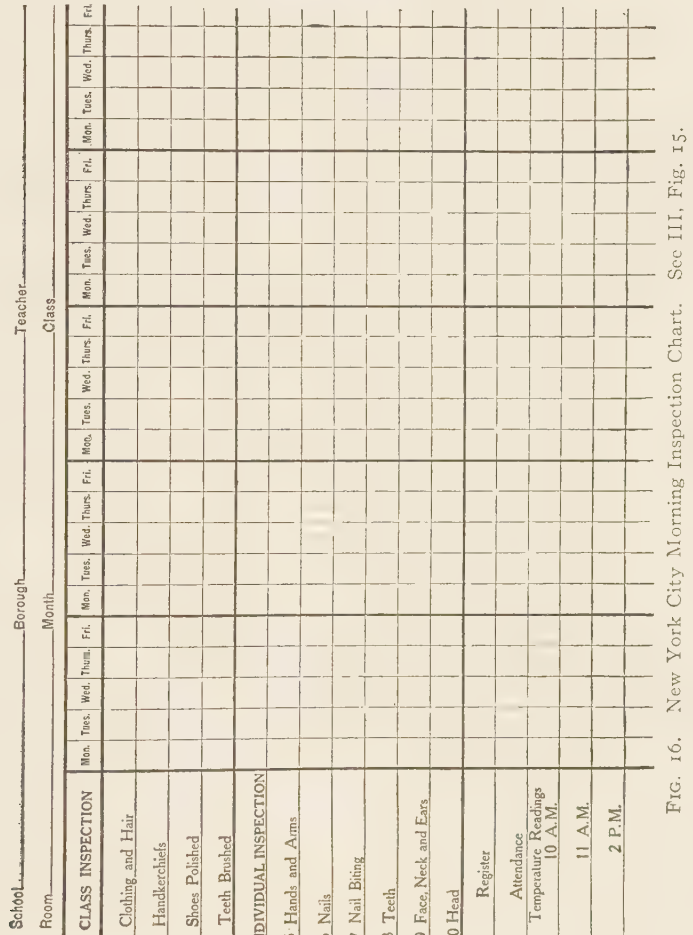
Give a "Teachers Reference Slip" (pink slip) to each child who is sent to the doctor's office.

The principal will continue to exclude children who need immediate attention. Do not always inspect same side of face and neck.

FIG. 15. New York City directions. Emphasis is placed on *health habit inspection*. If pupils inspect or help to inspect, as they do in many schools in the United States, they should not attempt *health inspection* but only health habit inspection.

tion, if not there it must be given in a special course in her school system. Such a plan gave good results in the New Bedford, Mass. school system, under the junior author and has proved satisfactory elsewhere. Teacher training institutions often offer a course in Health Examinations which covers precisely this ground.

If the teacher is to make this morning inspection (and she is the only person in the school system who can do so from a practical administrative


Board of Education of the City of New York
Department of Physical Training and Educational Hygiene

DAILY MORNING INSPECTION

School _____ Borough _____ Teacher _____

Room _____ Month _____ Class _____

CLASS INSPECTION	Mon.	Tues.	Wed.	Thurs.	Fri.	Mon.	Tues.	Wed.	Thurs.	Fri.	Mon.	Tues.	Wed.	Thurs.	Fri.	Mon.	Tues.	Wed.	Thurs.	Fri.	Mon.	Tues.	Wed.	Thurs.	Fri.
1 Clothing and Hair																									
2 Handkerchiefs																									
3 Shoes Polished																									
4 Teeth Brushed																									
INDIVIDUAL INSPECTION																									
5 Hands and Arms																									
6 Nails																									
7 Nail Biting																									
8 Teeth																									
9 Face, Neck and Ears																									
10 Head																									
Register																									
Attendance																									
Temperature Readings 10 A.M.																									
11 A.M.																									
2 P.M.																									

FIG. 16. New York City Morning Inspection Chart. Sec III, Fig. 15.

point of view): (1) She must adopt a very definite technic of examination; (2) She must be given a list of signs for which she should look (the list being based on the theory that it is desirable most of all to exclude any children who present certain signs often found in early cases of contagious and infectious diseases. In cases of contagious disease, symptoms of a common cold

FOR TEACHERS

SIGNS OF HEALTH DISORDERS AND PHYSICAL DEFECTS IN SCHOOL CHILDREN

The following signs of disorder have been arranged in three groups for the use of teachers in detecting possible health and physical defects in children under their care.

Group I contains signs of disorder which call for immediate attention.

Group II names signs of abnormality pointing to more chronic disorders which should be remedied early.

Group III contains indications of disturbance which are important in connection with other signs of physical disorder.

GROUP I.

Signs.	
Sore throat Earache Ear discharge Running nose	Disorders of nose, throat and ear.
Sore eyes of any kind Styes Congested eyes (red or bloodshot) Dizziness	Eye disorders and defects.
Flushed face Chill Headache Eruptions Nausea Vomiting Running nose Congested eyes Cough	Contagious diseases.
Fits Fainting	Nervous disorders.
Enlarged glands in neck Puffiness of face and eyes Shortness of breath Unusual pain anywhere	Nutritional and general disturbances.

FIG. 17. A very popular list of Health Defects grouped on the basis of urgency of need of attention.

Signs.	
Peculiar postures when reading	Eye disorders and defects.
Poor reading or spelling	
Prominent teeth	Teeth defects.
Poor articulation	
Broken teeth	
Malnutrition	
Irritability	Nervous disorders.
Bad temper	
Undue emotion of any sort	
Frequent requests to go out	
Timidity	
Stammering	
Cruelty	
Moroseness	
Solitary habits	
Undue embarrassment	
Undue activity	
Misbehavior	
Deficient weight	Nutritional and general disturbances.
Pallor	
Lassitude	
Perverted tastes (food)	
Slow mentality	
Peculiar or faulty postures	
Underdevelopment	
Excessive fat	
Low endurance	
Disinclination to play	
Fatigue	
Pigeon-toed gait	Defects of feet and legs and defective movements.
Shuffling, inelastic walk	
Exaggerated knee action in walking	
Shifting from foot to foot	
Standing on outer edge of feet	
Standing on inner side of feet, heels turned out	
Locking knees	
Leaning against wall or desk	
Shoes run over at either side	
Wearing out of soles asymmetrically	
Twitching of foot muscles	

FIG. 17. (*Continued.*)

GROUP II.

Signs.	
Mouth breathing	Disorders of nose, throat, ear, and organs of respiration.
Loud breathing	
Nasal voice	
Catarrh	
Frequent colds	
Offensive breath	
Chronic cough	
Deafness	
Twitching of lips	
Headache	
Headache	Eye disorders and defects.
Crossed eye	
Squinting	
Holding book too near face	
Decayed teeth	Teeth defects.
Discoloration of teeth	
Crooked teeth	
Offensive breath	
Inability to hold objects well	Nervous disorders.
Spasmodic movements	
Twitching of eye, face or any part of body	
Nail biting	
Perverted tastes	
Sex disturbances	
Pain in feet	Defects of feet.
Toeing markedly out	
Flatfoot gait	
Swelling, puffiness of feet	
Excessive perspiration of feet	
Unequal height of shoulders	Incorrect posture.
Flat chest	
Round back and shoulders	
Stooping	

GROUP III.

Signs.	
Prominent upper teeth	Disorders of nose, throat and ear.
Blank expression	
Slow mentality	
Poor physical development	
Inattention	
Slow progress	

FIG. 17. (*Continued.*)

are usually the first to appear. The teacher excludes on the basis of these signs. She never diagnoses. Any list of signs should not require more than one page for printing or typewriting since more only causes confusion. The teacher should always have this list available and should learn it thoroughly. (3) The school schedule must allow from five to ten minutes

FIRST HEALTH
THEN WISDOM

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE DEPARTMENT OF EDUCATION
MEDICAL INSPECTOR OF SCHOOLS

HEALTHY BODIES
STRONG MINDS

Suggestions to teachers to read the

HEALTH INDEX OF PUPILS

1	Posture *a* sitting *b* standing	16	Skin diseases or pimples
2	Emaciation	17	Overdevelopment, physical
3	Color, pallor or flush	18	Underdevelopment, physical
4	Unusual dulness or sleepiness	19	Twitching of eyes, face or any part
5	Activity, physical	20	Offensive breath
6	Teeth, malposed or diseased	21	Sore throat
7	Mouth breathing	22	Cough
8	Frequent absences	23	Enlarged glands, front or side of neck
9	Bad behavior	24	Uncleanliness
10	Inattention	25	Scratching of any part of body
11	Delinquency in studies	26	Frequent requests to go out
12	Defective vision or eye symptoms	27	Vicious personal habits
13	Defective hearing	28	Headaches
14	Nasal voice	29	Other bodily pains
15	Discharging eyes, nose, or ears	30	Limping, or deformity
		31	Stuttering, or defective speech

This health index card should be placed on teacher's desk for daily use and reference.

The teacher should promptly notify principal, medical inspector, or nurse, of such pupils as do not present a normal health index.

PREVENTION EASIER THAN CURE

THE FIRST AND GREATEST DUTY OF EVERY TEACHER: HEALTH AND VIGOR

HOME AND SCHOOL SHOULD WORK TOGETHER

An abundance of fresh air, pure water, wholesome exercise, and nourishing food, with regular habits, will do much for the health of TEACHER AND PUPIL.

FIG. 18. New York State Form. Brief but very comprehensive. Well adapted to classroom use.

at the beginning of the day for this work, at least till junior high school, unless the teacher makes a formal examination of each pupil before school opens officially. In Kindergarten a game may be devised to meet inspection needs. A mere glance about the room is not enough. In junior and senior

high schools the careful glance at each person in the class during the first period of the day has to suffice, but contagious disease is far less likely to occur in this older group. Pupils in the higher grades may be expected to assume some responsibility for discovering and reporting to the teacher, any pupils who are ill.

MORNING HEALTH INSPECTION[1]

Daily inspection of pupils for suspicious signs is the best practice. The teacher should spend the first five to ten minutes of the morning making a rapid inspection of the pupils' heads, hands, and skin, wherever visible, possibly looking at the throat when she has the skill to do so.

The following signs should be sought:

1. A general impression, perhaps unexplainable, that the child is not in normal health.
2. *Eruption* (rash) or sores of any kind. You can find these on face, neck, chest, hands and sometimes arms.
3. *Fever.*[2] You can tell this by the warmth and perhaps color of the skin. Contrast it with your own or another child's skin.
4. *Running nose.* The watery type is the dangerous one. Thick nasal discharge less important.
5. *Sneezing.* Often means early dangerous state of a cold.
6. *Red or running eyes.* These may be from cold or from other contagious disease or from eye trouble. Styes are common.
7. *Sore or inflamed throat.* The child will tell you if it is sore. You will note unusual redness near the tonsils and uvula if it is inflamed. The tonsils will be larger than peanuts and red. Sometimes they may be covered with a gray or white membrane.
8. *Swollen glands* of neck, larger than an ordinary canned pea. You will find some children will have these all the time, or after a sore throat or cold. You need not send these every day to the office; only if the glands have suddenly enlarged.
9. *Cough.* Listen for coughs during the morning examination. Usually it will be some child that you are NOT examining at the moment.
10. *Nits;* or any moving parasites in the hair or clothing.

Rarer signs:

1. Discharge from ear. You will rarely find this.
2. Lameness or other limitation of motion of body, limbs, or head.
3. Bandages on any part of body (not there the previous day).

All children who appear to need more careful and expert inspection should be given a note or slip showing why they are referred, and then sent to the principal or nurse for further examination and decision which may be (1) return to the room if the case may remain in school; (2) isolation and exclusion.

[1] These directions are used by the junior author in the health program project of the Demonstration Summer School, Teachers College. They meet the needs of the local situation.

[2] Every teacher should be able to use a clinical thermometer, and such a method is the only accurate way by which body temperature may be determined.

The teacher should be able to perform the morning inspection described above and thus sort out those who appear to vary from their usual condition of health, and should also take special interest in new arrivals whose physical condition is not as yet clearly understood and recorded on the health record cards.

TEACHERS REFERENCE SLIP

Name_____

Grade_____Room_____

Referred to Physician's Office for

_____

Date_____Hour_____ _____

Teacher

Action Taken

_____

_____

_____M.D.

FIG. 19. Horace Mann School Form (3″ × 5″ mimeographed white card), assumes examination by the school physician, because this is the practice in Horace Mann School. This slip can be modified to suit any situation by substituting, for references to the physician, other suitable names, such as nurse, principal, or other designated person.

104-E

TEACHER'S REFERENCE SLIP

SCHOOL_____ GRADE_____ ROOM_____

NAME_____ AGE_____

ADDRESS_____ FLOOR_____

REFERRED TO DOCTOR / NURSE FOR

_____

_____

DATE_____ TEACHER_____

ACTION TAKEN:

_____

_____

_____

_____

DATE_____ NURSE

_____ DOCTOR

DEPARTMENT OF HEALTH—BUREAU OF CHILD HYGIENE
CITY OF NEW YORK

FIG. 20. New York Public Schools. A light brownish-red paper slip 4½″ × 5″. The distinctive color and larger size are the only variations from the Horace Mann Form.

The following forms may be used for Teachers' Reference Slips:

ST. LOUIS PUBLIC SCHOOLS
SCHOOL HYGIENE DIVISION

Pupils to be Examined

Room_____ Date_____

NAMES OF CHILDREN	REASONS FOR SENDING CHILD																				
	Absence	Skin	Vision	Conjunctivitis	Ears	Nose	Throat	Teeth	Cough	Temperature	Headache	Cleanliness	Injury	Pediculosis							

EXAMINED BY
Dr._____
Inspector of Hygiene.

NOTE:—These are suggestive symptoms the teacher may select from.

FIG. 21. St. Louis Public Schools. 4″ × 6″ white paper. A slip for referring a group of children for examination. A very useful, simple form.

ST. LOUIS PUBLIC SCHOOLS

TEACHER'S REPORT TO INSPECTOR OF HYGIENE ON PUPILS ABSENT 3 DAYS ON ACCOUNT OF SICKNESS OR CAUSE UNKNOWN.

_____ School Room_____ Date_____ 19____

NAME	SEX	ADDRESS	Cause of Absence*		REMARKS
			Sickness	Unknown	

* Check in Proper Column.

FIG. 22. Another type of follow-up. 3½″ × 5½″ white paper. Such useful reports often come to the Health Office from the principal.

At present most morning inspections are carried out in name only and at best have chief interest in the child's personal hygiene. Such inadequate protection undoubtedly explains many contact infections through the schoolroom. In addition to the teacher's inspection, it may be possible to have the school nurse or physician examine quarantined rooms once more during the school day. Rarely, where the need is marked, the doctor or nurse may care for the morning inspection in one or two rooms of a district.

Objections which have been *made to* such a *morning inspection* are:

1. "A layman should never make a medical diagnosis." This is quite correct. Under the theory on which the proposed plans are based, no diagnosis is made, but exclusion is on the basis of certain Signs of Health Disorders, which in a large majority of cases indicate the presence of some illness which needs medical attention.

2. "The teacher's time is taken from classroom work." If this is true, she would lose still more time, if she contracted some disease from a pupil and was obliged to remain away from work. Furthermore, enough cases of certain diseases, such as diphtheria, might necessitate closing her room. The morning inspection plan is a definite teaching project as well as a protective measure. It is sound educationally.

3. "It endangers the teacher"—but not half as much as the presence of an undiscovered case of contagious or infectious disease in her room. By inspection, such dangers are revealed and eliminated.

4. "Inspection is uninspiring; therefore it is not in keeping with modern theories of education." It is fundamental to the best health of the group and forms a very definite health teaching project. If it is uninspiring, it is because of the attitude taken by the teacher.

5. Parents complain about the teacher "handling the child." If such objection is valid, all school health examinations will soon cease. When parents understand what is being done, they approve. Furthermore it is frequently unnecessary for the teacher to touch a child (see 7 and 8).

6. "The teachers have not adequate training." But they can and should be trained. In many school systems, such as Detroit, they perform far more technical services, and their findings are favorably comparable with those of physicians who check them. All a teacher must do, is to note any variation from normal health, after which the suspected child is sent without further examination to the next higher authority for further opinion and more careful examination.

7. "The teacher may transfer a disease to another child." She need not do this:

(*A*) Because she handles children, if at all, as little as possible.

(*B*) Because she examines each child WITH HER EYES FIRST, and her fingers later, if at all.

(*C*) She touches no suspicious cases but ceases inspection of that child at once, and refers such a pupil to the designated authority.

8. Many believe "a teacher should NEVER TOUCH A PUPIL in morning inspection." Unless she does so, she can not detect any sign depending on touch for obtaining the information desired. Because many individuals insist on personal variations of technics advised, and because many use any technic carelessly and indifferently, it is wise to *forbid the teacher to touch any pupil in the inspection*, at least until it is positively known that the work can be done carefully and with good technic.

Each teacher should be provided with a comprehensive manual covering the methods of control of communicable diseases and providing general

information about these illnesses. Wood and Rowell's "Health Through Prevention of Disease"[1] meets this need.

To the Parent or Guardian

Your child did not seem very well in school to-day and at the request of the Superintendent of Health the temperature was taken and some fever found. Keep the child in the house and do not send him back to school till he seems perfectly well.

If the child grows worse, put him to bed and send for a doctor.

FIG. 23. Providence, R. I. white slip 3½ × 6". A simple slip where "fever" is found.

Form HH 6

Saturate hair and scalp with kerosene and leave it on three hours. Wash off thoroughly with soap and water.

Remove nits with fine comb wet with vinegar.

Do this every day for three days.

Molhar o cabello e casco com petroleo conservando-o assim por espaço de 3 horas. Depois lava-se bem com agua e sabão.

Limpar com um pente fino, molhado em vinagre, as lendeas, e isto por espaço de 3 dias.

Imbibez les cheveux et la peau de la tête avec du pétrole et laissez le pendant trois heurs.

Ensuite lavez la tête avec de l'eau et du savon.

Pour ôter les lentes servez vous d'un peigne fin saucé dans du vinaigre.

Répétez la même chose tous les jours pendant trois jours.

Zmoczyc włosy i skóra na czasce nafto i tak zostawić przez trzy godziny a potem wymyć całkowicie z mydło i czysto wodo.

Czesac włosy z gęstym grzebieniem namoczony w occie aby usunąć gnidy.

Trzeba czynic tak jak powyżej przepisano przez trzy dni.

FIG. 24. Pediculosis Form. New Bedford, Mass. Note printing in four languages.

[1] Published by the World Book Co., Yonkers, N. Y.

DEPARTMENT OF HEALTH

THE CITY OF NEW YORK

BUREAU OF CHILD HYGIENE

Instructions to Parents on the Care of Children's Hair and Scalp

Children affected with vermin of the head are excluded from school. The following directions will cure the condition:—

Mix one-half pint of sweet oil and one-half pint of kerosene oil. Shake the mixture well and saturate the hair with the mixture. Then wrap the head in a large bath towel or rubber cap so that the head is entirely covered; the head must remain covered from six to eight hours. *Do not expose child to flame.*

(Tincture of Larkspur may be used instead of oil mixture. The directions for use are the same.)

After removing the towel, the head should be shampooed as follows:

To two quarts of warm water add one teaspoonful of sodium carbonate. Wet the hair with this solution and then apply castile soap and rub the head thoroughly about ten minutes. Wash the soap out of the hair with repeated washing of clear warm water. Dry the hair thoroughly.

NITS: If the head is shampooed regularly each week as above described, it will cure and prevent the condition of "nits."

Issued by Order of the Board of Health

FIG. 25. Pediculosis Form. New York City, 5″ × 7″ white paper. Note the carefully detailed directions for a simple method of treatment. Few forms of this type show as much attention to detail.

℞

Fl. Extract Staphisagriae - - - -		℥I
Acid Acetici - - - - - - - -		℥I
Aquae q. s. - - - - - - -	ad	℥VI
		Mix

Apply liberally to the hair and scalp on three successive days.

FOR EXTERNAL USE ONLY

FIG. 26. Pediculosis form. Toronto, Ontario 3″ × 5″ white paper.

Function of the School Nurse

The nurse is usually the next higher authority than the teacher. If she can visit the school frequently enough, if it is her day to visit that particular school, or if the examining office is near, she takes charge. Otherwise the matter goes directly to the principal.

When the nurse excludes a child with a fever, Fig. 23 shown on page 112, could be sent to the home.

In cases of pediculosis, and sometimes scabies, ringworm, and when the child is excluded, home treatment slips are given along with the exclusion.

Such home treatment slips have the greatest value when they are able to recommend a simple, fool-proof technic for treatment; materials for the most part always in the home or which may be purchased inexpensively; where desired, they can be printed in foreign languages although this is not as valuable a procedure as might be expected, since in many families who can not understand English, it is the school child who reads the slip to the parents in any case (this necessitates the simplest language possible).

Saturate the hair and scalp with kerosene and leave it on three hours. Then shampoo the head thoroughly with soap and water. DO NOT EXPOSE THE CHILD TO A FLAME.

(You can use tincture of Larkspur instead of kerosene. KEEP THE LIQUID OUT OF THE EYES. If you use Tincture of Larkspur, cover the head with a towel for at least six hours. Then shampoo head thoroughly.)

In either case, remove the nits with a fine comb wet in vinegar.

THE CHILD WILL NOT BE READMITTED TO SCHOOL UNTIL ALL THE NITS HAVE BEEN REMOVED. This should not require more than one or two day's absence.

Please have the child report to the school office before returning to the classroom.

HUGH GRANT ROWELL

School Physician

Fig. 27. Pediculosis Form. Summer Demonstration School mimeographed. Teachers College, New York City.

Form HH 28.

The Following Is a Good Treatment for the Itch.

1. Remember the child can easily give the disease to the rest of the family.

2. Boil underwear, stockings, sheets and pillow cases, cloths and towels which the child has used, and iron the quilts and blankets twice with a hot iron.

3. For three nights rub the body very thoroughly with the ointment which you can get at a drug store with the prescription at the bottom of this paper OR else make a mixture of four parts Lard and one part Powdered Sulphur, thoroughly mixed, and rub this on the body but **not on the Head Face, or Neck.**

4. In the morning, after leaving the ointment on all night, take a warm bath with soap, and put on clean underwear, stockings, and other clothing touching the skin.

5. For two more nights repeat 2, 3, 4.

6. If the child is not cured by this time you should at once go to a doctor and keep the child under his care until cured.

To Be Filled at a Drug Store

℞

Sulphur	7.50
Beta Naphthol	7.50
Lard q. s.	90.
M	

Sig. Apply as directed.

FIG. 28. Scabies Form. New Bedford, Mass. Note attention to detail of treatment.

MILWAUKEE HEALTH DEPT.
Bureau of Child Hygiene

SCABIES NOTICE

Date_____

Your son / daughter _____ is afflicted with

Scabies [Itch].

Kindly take h_____ to your family doctor, or dispensary, or treat as follows:

Directions: Take a bath with water and soap, scrubbing thoroughly. Then dry the skin by rubbing hard with a towel and rub into every diseased spot the ointment the attached prescription calls for.

Continue the treatment daily until cured.

_____
Medical Inspector

TAKE THIS TO A DRUG STORE

℞

Sulphur	**7.50**
Beta Naphthol	**7.50**
Adipis q. s. ad.	**90.00**

M. et. Sig.—Apply as directed.

FIG. 29. Milwaukee. Scabies Slip $3\frac{1}{4}'' \times 8''$ white paper. Springfield, Mass. uses a similar form on yellow paper.

I

TO BE FILLED AT A DRUG STORE

℞

Resorcin, ... 15
White Precipitate, . . . 50
Lard q. s., ... 15.

M. Sig. Apply morning and night until the disease is cured.

FIG. 30. Impetigo Slip. Springfield, Mass. Pale blue paper $2\frac{3}{4}'' \times 4\frac{1}{4}''$.

MILWAUKEE HEALTH DEPT.
Bureau of Child Hygiene

RINGWORM NOTICE

Date_____

Your son / daughter _____ is afflicted with

Ringworm.

Kindly take h_____ to your family doctor or the dispensary, or treat as follows:

Directions: Remove the scales with soap and warm water. Dry thoroughly and apply the medicine morning and night until the disease is cured.

MEDICINE

Tincture of Iodine 1 Teaspoonful (1 dram)
Alcohol 2 Teaspoonfuls (2 drams)

Mix and use as directed.

_____
Medical Inspector

FIG. 31. Milwaukee. Ringworm Slip. $3'' \times 8''$ white slip. Springfield, Mass. uses a similar form on bright blue paper.

FUNCTION OF PRINCIPAL OF THE SCHOOL

Where nursing service is limited or not provided, the principal, because of longer experience in the work than the teacher, must sometimes decide whether the case is sufficiently suspicious to exclude, as where some definite rash is evident. At such times the best practice is for the principal to notify the Board of Health of his or her opinion regarding the child and take such further action as they desire. In other cases, such as Pediculosis, where the diagnosis is evident, exclusion may be made and here it is desirable to supply the child with a home treatment slip unless one is sure that the services of a physician or a clinic will be utilized.

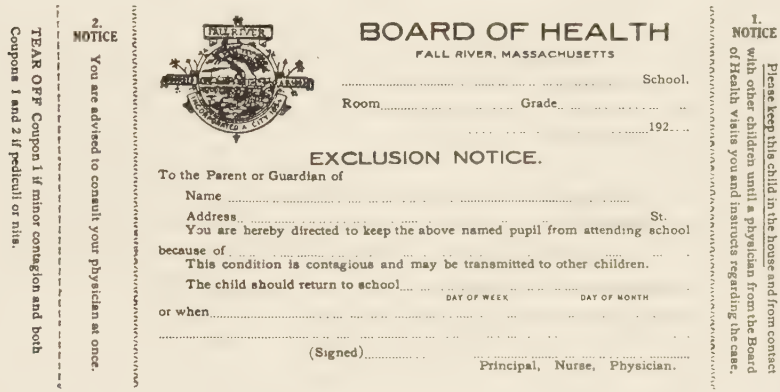
Where nursing service is ample, the nurse would perform the same duties outlined above for the principal, in which case the principal would give the teacher needed information and orders, and perform the customary executive duties, such as notifying the parents, and getting in touch with the Board of Health in cases of communicable disease.

FUNCTION OF THE SCHOOL PHYSICIAN

The school physician would be in the school in which the cases were discovered, in another school, or on call. In any case, children who were believed by the principal or nurse to need his attention, should be held subject

to his orders and communication established with him. The best practice is to have him actually see the excluded cases except where the best interests of all are more satisfactorily served otherwise. Unless he sees the case, no definite diagnosis should be made, but suitable action should be taken, as exclusion for active Pediculosis or, in a measles epidemic, exclusion of non-immunes with colds.

A routine plan covering many situations likely to arise must be established by the physician or other executive and will permit more rapid and more consistent handling of suspicious cases.



2. NOTICE

You are advised to consult your physician at once.

TEAR OFF Coupon 1 if minor contagion and both Coupons 1 and 2 if pediculi or nits.

BOARD OF HEALTH

FALL RIVER, MASSACHUSETTS

..... School.

Room..... Grade.....

..... 192..

EXCLUSION NOTICE.

To the Parent or Guardian of

Name .....

Address..... St.

You are hereby directed to keep the above named pupil from attending school because of .....

This condition is contagious and may be transmitted to other children.

The child should return to school.....
DAY OF WEEK DAY OF MONTH

or when.....

.....

(Signed).....

Principal, Nurse, Physician.

1. NOTICE

Please keep this child in the house and from contact with other children until a physician from the Board of Health visits you and instructs regarding the case.

FIG. 32. Fall River, Mass. Exclusion Form. Note tabs at end to be torn off under certain conditions. These forms are filled out in triplicate with carbons. As these excluded children, are returned to School the nurse, teacher or principal mails the form to the office of the director with the report of the disposition of the case on the back. Upon receipt of this report showing disposition, the slip is matched with the green slip in the file in the director's office. The green slip can thus be counted to show the results of the work.

Information and slips sent to the home urging the treatment of minors are best received when they are brief, easily understood, and are tactful. A few of the best types are given for models. In practice each should be adapted to the community served.

TABLE I *

EXCLUSION NOTICES

	Group I	Group II	Group III
Excluded for:	Pediculosis (lice), nits	Minor skin diseases	Major contagion or quarantinable and reportable diseases
Directions:	Tear off "notices 1 & 2"	Tear off "notice 1"	Send notice entire
On return to school:	Readmitted by principal without Board of Health permit	Readmitted by school nurse upon permit or examination	Readmitted only on Board of Health permit

* (See detailed instructions)

FIG. 33. Fall River, Mass. System of grouping cases.

M8

DIVISION OF MEDICAL INSPECTION AND PHYSICAL EDUCATION
BOARD OF EDUCATION
CLEVELAND, OHIO

.....School. .....19....

Name.....

Residence.....

It is necessary, because of the danger of spreading disease, that your child (children) remain at home because of .....

Send.....back to school for examination .....19....

Principal.....

See your family Physician about the case at once.

School Inspector.....

FIG. 34. Cleveland, Ohio. Covers all essential points in a yellow slip $3\frac{1}{2}'' \times 5\frac{1}{2}''$.

MILWAUKEE HEALTH DEPARTMENT
BUREAU OF CHILD HYGIENE

Exclusion Notice—

Date_____

Name Age Grade

Address

Is ordered to discontinue attendance at the School

Reason:

To report for re-examination

Dates of reexamination

Dates of re-admission

Teacher

School Physician

MILWAUKEE HEALTH DEPARTMENT
BUREAU OF CHILD HYGIENE

Exclusion Notice to Parents—

Date_____

Your child_____has this day been excluded from school from what appears to be_____

_____and should receive prompt medical attention. This child is ordered to remain at home, **in the house,** in order that the disease may not be transmitted to others and also that the child may be seen when a Health Department Physician or nurse calls.

School Physician

KEEP THIS NOTICE!

FIG. 35. Milwaukee. Yellow paper. $5'' \times 6''$. Note that slip is double—part is sent home, part retained by the school. This plan deserves wide use.

Readmission

Upon receipt of a notification that something is wrong with the child, the parent becomes responsible for further handling of the case and can be required legally in many states to provide adequate treatment, under truancy laws, although it is not customary to invoke legal aid if this step can be avoided.

The home has the further duty of keeping the child excluded till no danger to the child or his fellow pupils can result from the further course of the illness, and should be expected to furnish suitable physicians' certificates to this effect, wherever possible, before sending the child to the school for readmission. The school is not obliged to accept such certificates should they conflict with the general policy in such illnesses. The ideal method is for the school to provide an adequate system for readmission but the home is expected to place as small burden as possible upon the school health system, and readmission will be facilitated if this idea is observed. The Horace Mann Elementary School offers an ideal situation in that each absentee must report to the physician's office before returning to the classroom.

HORACE MANN SCHOOL

Name .....

Class .....

Examined..... 192 ...

A..... E.....

Recorder..... ..... *M. D.*

Fig. 36. Horace Mann School. A simple white slip 3″ × 5″. Cause of absence is written in lower left corner. Special notes to teacher are written on front or back of this form.

Date.....

Name of Pupil

.....

Address.....

QUARANTINE REMOVED

HEALTH COMMITTEE

BOARD OF EDUCATION

Date .....

Name of Pupil .....

Address .....

The above named pupil will be admitted to School

.....19

Health Inspector

(HAND TO TEACHER)

Fig. 37. Millville, N. J. A blue slip 3½″ × 8½″ with stub for office record.

Please re-admit

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

DEPARTMENT OF PUBLIC HEALTH.
TORONTO. NO. 35

FIG. 38. Toronto $3'' \times 5''$ pale blue slip. This note is sent from the nurse to the teacher. The simplest form possible for readmission notice to the teacher.

ST. LOUIS PUBLIC SCHOOLS
School Hygiene Division

PHYSICAL FITNESS CERTIFICATE

.....192...

This is to certify that.....

pupil of the..... School has been examined and found

.....physically fit.

Cause of disability.....

Duration of excuse .....

.....M. D.
Director of Hygiene.

FIG. 39. St. Louis, Certificate of Physical Fitness. Useful where a pupil may attend school but must accept a limited program.

In practice, return to the school is permitted after definite requirements have been fulfilled. Either a physician's certificate satisfactory to the school authorities or a physical examination of sufficient amplitude to justify certification, is required customarily before permission is given to again resume work in the classroom.

RELATIONS OF THE SCHOOL AND COMMUNITY

Definite coöperation must exist between the school, the local health authorities and other individuals involved in the control of communicable disease. The methods used must vary according to local needs.

Relations with the Board of Health

The School and the Board of Health have definite duties to one another, whether the school medical inspection is administered by a division of the Board of Health or whether it is cared for by the Educational Authorities.

Reporting of cases of contagious disease discovered in the schools must be made to the Board of Health. Legally, the person who makes the tentative diagnosis, or his superior officer, should report the case. In practice, many boards prefer to accept only the diagnosis of physicians, having little faith in lay opinions, although information is usually investigated. Reports should be made through some definite channel; the actual plan depends on what method seems to facilitate action the most and is approved by the Board of Health.

Releases of cases from quarantine should be reported to the school department from the Board of Health in order that attendance may suffer as little as possible. This should be daily at least and not over 24 hours after the release of the household and observance of legal requirements regarding "cleaning up."

Borderline situations arise which must be handled by agreement. Tales of cases of communicable disease brought to the teacher by other pupils may or may not be reported to the health officials as desired by them. The action of the school authorities regarding such tales must always be, that they are true till proved otherwise, even if one or more children in the family lose a session or two of school while the story is being investigated. The question of who shall investigate rumors is a matter of local code.

In general, the Board of Health is considered the supreme community health authority. State officials are not inclined to interfere in its actions except where public welfare demands or where other communities are endangered by unsatisfactory practices. Hence the Board of Health regulations in matters of reporting and inter-relations are and must be supreme. On the other hand, the educational authorities seem to have broad powers, plus a further derived power secured from the Board of Health, and provided the schools use no measures of less stringency than the health officials, the former may regulate the matter of attendance as they choose. The Horace Mann School regulations, for example, are more strict than the New York laws or city regulations demand.

Relations with Social Agencies

Social service agencies are often kept in close touch with school exclusions involving their particular field, since their interest and assistance may be needed, this being particularly true of certain public health nursing associations. Cases are referred with as adequate history as possible for action deemed suitable by the agency. The school may suggest but should never attempt to dictate the agency's procedure. Some boards of health will not permit these agencies to function in communicable disease except in the matter of supplying funds as needed, the health officials handling the expenditure.

Relations with Private Physicians

The average family physician plans to coöperate with the schools if he is familiar with the procedures required. Nevertheless, he dislikes filling out various report forms. Therefore, such blanks should require as little effort on his part as is consistent with obtaining accurate and satisfactory information. The family should be urged to obtain his certificate on the visit which is expected to be his final one since it would facilitate readmission to school. Families feel that the school is imposing more expense upon them when an extra visit to or by the physician is required for the certificate and are often inclined to depend on the school health system for this service unless some plan is carefully brought to their attention. The various local physicians should at all times be kept well-informed regarding the procedures required by the schools. The school reserves the right to reject any certificates which do not comply with its regulations, as where too short a period of exclusion has been allowed by the family doctor in contagious diseases. Virginia uses this form:

COMMONWEALTH OF VIRGINIA
STATE BOARD OF HEALTH
RICHMOND, VIRGINIA
Doctor's Certificate for Non-Attendance at School

CHILD'S NAME	Date of Birth	Grade	School	District
PARENT OR GUARDIAN'S FULL NAME	Residence	City or County		

I hereby certify that I have thoroughly examined ..... (Child)

on ..... (Date) and found the child, in my opinion { able / unable } to attend school, because it is suffering from ..... (Diagnosis)

..... (Diagnosis)

and will not be able to return to school until approximately ..... (Date)

Are parents willing for child to have special treatment if advisable? YES OR NO.
Financially able? YES OR NO.
What special treatment would you advise? .....
After special treatment will child probably be able to return to school? YES OR NO.

(Signed) ..... M. D.

COPY OF LAW ON OTHER SIDE ..... P. O.

Section 3 of the Virginia Compulsory Attendance Law reads: Any child who is physically or mentally incapacitated for the work of the school is exempt from the provisions of this act, but the division superintendent of schools shall have the right, and he is hereby authorized, when exemption under the provisions of this section is claimed by any parent, guardian, or other person having control of any child or children for physical incapacity, to require from a practicing physician a properly attested certificate, issued after such an examination as may be specified by the State Board of Health, that such child or children should not be required to attend school on account of some physical condition which renders attendance impracticable or inexpedient.

TO THE EXAMINING PHYSICIAN:

The clinical evidence should be such as would be given by the physician in case of legal procedure, for example, if the diagnosis is heart disease, state symptoms, as "murmur, dyspnea, etc.;" if kidney disease, state "albuminuria, nocturia, etc.;" if tuberculosis, state temperature, physical findings, etc.; if malnutrition, state pounds underweight, anemia, etc.; if a nervous disorder, state "choreiform movements," "exhaustion," "hypersensitiveness," "emotionalism," etc. If convalescent, state from what illness.

FIG. 40. Front and reverse side of Virginia Form. 4″ × 6″ white card. Many schools would find this form valuable.

RELATIONS WITH THE COURTS

The courts are rarely interested in the communicable disease program unless suit in tort is made for apparently unwarranted exclusion. In such cases a suitable record system will care for most legal requirements.

QUARANTINE AND ISOLATION

Quarantine applies to a room or residence; isolation, to an individual, according to the approved definition.

Quarantine and isolation concern a school system only in so far as any of its members are prevented from or limited in school attendance thereby. Practices differ in various communities but in general the pupils exposed will be absent at least the length of the customary incubation period following the last exposure, if they are susceptible to the particular disease. If they have had the disease, after fulfilling simple regulations regarding personal disinfection and having been satisfactorily proved not to be a carrier, as by negative throat culture or two successive days in diphtheria, they will, in most contagious diseases, be permitted to return to school, usually after certification by the officials of the Board of Health. In some instances, in the milder contagious diseases (which may not be placarded in a given community) the school officials are permitted by the health officials to assume jurisdiction providing approved standards of readmission are observed.

Placarding of homes is commonly interpreted as forbidding entrance to the premises. While this may be true theoretically, in many smaller cities it is popularly held to mean merely "Travel at your own risk," because strict control is deemed too expensive except in the severer contagious diseases such as smallpox, diphtheria, and scarlet fever.

Isolation of the sick individual will sometimes result in permission to allow the other members of the family to go about their usual pursuits

provided regulations regarding personal disinfection and room disinfection are carried out by immunes; and more stringent school attendance regulations, by non-immunes. Isolation of an individual is interpreted to mean practically no communication with the rest of the household except through dishes and utensils which are sterilized before contact with the rest of the home, the sick person and attendant being barred from any relation to the family other than this.

Control of Rooms or Schools Where Exposure to Contagious Disease Has Occurred

Usually if a child has been absent from school for 24 hours previous to the earliest symptoms of any contagious disease, the room is not considered exposed; if the period is less than 24 hours, precautions are observed. This rule is arbitrary but workable and is scientifically sound.

Closing schools in epidemics was formerly considered the only method of protection and control. Now it is held to be archaic and only useful for the exceptional emergency. The best control of the situation from an epidemiological point of view is through keeping the schools open; carefully checking all absences at once; daily inspection of all members of the school; and excluding individuals and isolating rooms as indicated. In the most severe measles epidemic ever seen in New Bedford (in 1923), this method proved the only sure way of knowing the true situation, even after the local physicians were making special efforts to report cases early. The concealed case, without physician, can be discovered in no other way, unless by house-to-house inspection, the expense of which is prohibitive. Preschool and adult cases are often revealed by some talk of the child in the classroom. If wise publicity is used, the confidence of the public is retained and by keeping them at all times conversant with the situation through reports to the newspapers, excellent cooperation is assured. Deception only brings distrust and dissatisfaction, and eventually complete loss of goodwill on the part of the public.

In a private school, of the boarding type or day type, the question of closing the school or part of it involves other factors. The class of family which patronizes the private school is less likely to try to conceal a case of contagious disease and is more likely to protect the school child from contact with others who may have the disease. No definite aid in obtaining knowledge of concealed cases is available through keeping a private school open. The private school child has, in most cases, less immunity to contagious disease than the child of a lower social level, and therefore needs far greater protection. The wishes of parents have greater weight in a private school and may definitely affect the policy adopted. In general, for these reasons, a private school may be more justified in closing a room or the whole school than the public school would be.

Inspection should be made each morning in the home before the child is permitted by the parent to start for school. Slips supplying the parents as well as teachers with a list of signs and symptoms[1] to look for will greatly

[1] See p. 104.

aid the efficiency of this procedure. Examples of these have been shown earlier in this chapter. Parents of pupils in the Horace Mann School are always notified whenever a class is exposed to a contagious disease. The school should be notified in case of suspicious conditions and the child kept at home. On entering the room, at the very beginning of the day's program, the teacher or nurse should carefully and systematically go over the group seeking for sick children and the school physician should do the same on his visit, which should be daily. Suspicion of disease should be enough for exclusion. The period which the child must stay out is again a matter for the individual school system to determine, and is based on the length of time the disease may be communicated to others or the length of time the child will require to be well enough to take up school duties again.

The Individual Room Quarantine Plan reported from the New Bedford school system by Rowell,[1] and in use in the Horace Mann School, consists of running a school room as a separate school within a school, all contact with other rooms being avoided except through the toilets, and this is said to be almost without danger of infection to children not in the quarantined room. This plan is used in rooms where a child has come down with a contagious disease within twenty-four hours of his last hour in school, if the school authorities are familiar with the fact. The pupils reach school slightly late, go at once to the room on arrival at school, and are dismissed a few minutes earlier or later than the others. The quarantine is continued for the length of the incubation period of the disease in question, dating from the last known contact with the room or any of its members. The individuals in the class are inspected at least once daily; careful watch kept for suspicious symptoms and such children excluded as seems desirable. The plan is most useful in sporadic cases of contagious disease which are continually appearing in a school system. In epidemics it can be utilized as far as common sense permits so mild a measure or till too many rooms are in the process to make it practical from an administrative point of view. Exclusion of groups of exposed children, such as by closing rooms or schools, is not desirable in public schools. In private schools, the matter is debatable. On many occasions the Individual Room Quarantine Plan will be ample protection and will keep up attendance besides giving a good source of information as to subsequent cases arising from a given source. The disease and its prevalence are the criteria as to procedures in the school. If children are permitted to remain in school, very strict medical observation is necessary, plus constant vigilance on the part of the teacher, who must be familiar with the early signs of the illness, which in most cases will be the signs of the onset of the common cold. The group in the isolated room usually does not contain children from the same household as the case by whom the room has been endangered. Children in the same household are governed by special rules depending on whether they are immune from the disease and whether they are carriers or not. Coöperation of parents may be a factor, for if coöperation by the home is assured and they will watch carefully for early symptoms, greater chances may be taken by the school. Following is a permit used in Springfield, Mass.

[1] Rowell, H. G.: American Journal of Public Health, April, 1923.

City of Springfield, Mass.
HEALTH DEPARTMENT.

Permit for.....

.....

residence.....

is hereby given permission to attend.....
while he lives away from home, pending the continuance of infectious disease in the household.

Date.....

Agent Board of Health.

FIG. 41. 3″ × 5″ white card, printed in red.

Frequent inspection of special groups after exposure is a necessity and unless this can be done, exclusion for the proper period is the only course. A good record may be kept on forms of the type of Fig. 42, p. 127.

Disinfection and fumigation of school rooms have passed into the discard. Methods: (1) A plan modelled after the Gale Lodge system such as is used in the South Department of the Boston City Hospital. It consists of thorough cleaning of the room, and especially the contaminated furniture, with strong soap and water; thorough airing for about twenty-four hours, permitting all the sunlight possible to enter, plus destruction of the books and other desk property in diseases of the carrier type, actually diphtheria, scarlet fever, and small pox. The actual practice regarding area cleaned with soap and water varies but if a wide area of that part of the floor most probably used by the attacked child is cleaned, as well as about two desks in each direction from the center of infection, the needs of the situation should be well cared for. (2) Some school systems pay no attention to this matter whatsoever and yet are considered to be handling the situation adequately. In all probability air and sunlight are all that are needed, except care of the contents of the desk of the sick child. If desired, objects which have had known contact with the child may be cleaned. This new attitude is due to an increasing disbelief in "fomites" which is probably justifiable. (3) One school system at once removes the infected desk to the janitor's room where it is cleaned thoroughly and kept till the pupil returns.

RECORDS

A school should keep a definite, active record of each case of contagious disease among its pupils.

A sample card used at the Horace Mann Schools is shown below on p. 127, Fig. 43.

Records of cases of communicable diseases are kept by the principal, teacher, health officer or best available person.

In addition to this, pin maps of cases of contagious disease in the city should be kept in the office of the school health supervisor and the reports of the U. S. Public Health Service and State Board of Health should be carefully

ST. LOUIS PUBLIC SCHOOLS
SCHOOL HYGIENE DIVISION

DAILY INSPECTION CARD

File No. _____

School _____ Room No. _____ Date _____

Name _____

Address _____

Disease _____

This child did _____ contract the disease.

FIG. 42. St. Louis Public Schools. Daily inspection record. 3″ × 5″ white cardboard.

Name ..... Room .....
Disease .....
Date reported to school .....
Date onset of symptoms .....
Date diagnosed .....
Date last in School .....
Probable source of contagion .....
Watch room from ..... to .....
Remarks: .....
.....

FIG. 43. The Horace Mann School Form. Experience has shown that information is ample. 3″ × 5″ mimeographed white card kept in School Physician's office.

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE DEPARTMENT OF EDUCATION
SCHOOL HEALTH SERVICE

DISEASE CENSUS CARD

To be filled out by child's parent or guardian and returned to teacher

1 ..... 2 .....
Family name *Given name in full*

3 .....
Address

4 ..... 5 .....
Place of birth *Age*

6 ..... 7 ..... 8 .....
Height *Weight* *Date of successful vaccination*

Check the diseases you know this child has had, giving dates if possible:

Chicken pox	Measles	Tonsillitis
Diphtheria	Mumps	Tuberculosis
German measles	Scarlet fever	Typhoid fever
Infantile paralysis	Smallpox	Whooping cough
Influenza		

Date ..... *19*..... [*Signed*] .....
Parent or guardian

FIG. 44. Form for obtaining data on contagious diseases. White card 3″ × 5.″

WOOD-ROWELL CLASSROOM IMMUNITY CHART

YEAR 19____ SCHOOL_____ ROOM____ GRADE___ TEACHER_____

PUPIL	AGE	CONTAGIOUS DISEASES C.P.	DIPH	G.M.	I.P.	MEAS	MUMPS	SC.F.	S.P.	WH.C.	IMMUNIZATION DIPH.	SC.F.	S.P.	FAMILY
Abbott, Frank	8	'20					'22			yes	'21		'24	John IV Lo
Andrews, Sally	7		'24			'20	?					'25	'24	Only child
Arthur, Chester	8		?			'20		?				'25	'24	Mary II L Peter IV K

FIG. 45. For over fifty pupils. A white chart 8″ × 5″. The reverse side is the same. This form is a modification of an earlier and less complete form used for some years in Horace Mann School. (From "Health Through Prevention and Control of Disease," copyright by the World Book Company, Yonkers, N. Y.).

studied to determine whether any special contagious disease is likely to attack the particular city involved and if so, special precautions should be taken to avoid as many cases as possible by unusual watchfulness in the classrooms, if nothing else.

Epidemics can often be predicted well in advance of their onset. Lists of pupils in each room (kept up to date) showing what contagious diseases each child has had, should be kept, and afford instant information regarding the status of a given room in regard to any contagious disease. This information has an important bearing on the policy adopted in any situation which may arise through a case of contagious disease. See Figs. 44, 45, 46, 47.

Public Health Is Purchasable. Within Natural Limitations Any Community Can Determine Its Own Death Rate

NEW YORK STATE DEPARTMENT OF HEALTH
ALBANY, N. Y.

HERMANN M. BIGGS, M.D.
COMMISSIONER

SUSCEPTIBILITY CHART

Name of School.....Grade.....City / Village / Town } of.....

For School Year beginning.....Name of Teacher.....

Names of Pupils	Chickenpox	Diphtheria	Ger. measles	Poliomyelitis	Measles	Mumps	Scarlet fever	Smallpox	Typhoid fever	Whooping cough			Date successfully vaccinated

Use + to indicate child has had disease or has been successfully vaccinated; use # to indicate that parents' statements are verified by Health Officer's records, or in the case of vaccination that scar has been examined and found to indicate that child has been successfully vaccinated. If a child is successfully vaccinated or has any of the diseases mentioned during the school term the fact should be noted on the "Disease Census Card" and (by a +) on this sheet.

FIG. 46. Original form 6″ wide by 11.5″ long with spaces for the names of thirty-two pupils. The top and bottom are shown in this illustration.

Any plan for control of communicable diseases in rural systems depends on actual existing conditions. In general the teacher will have to assume more responsibility and exclude the suspicious child, notifying the parents, usually by a note or telephone, of her suspicions and requiring a medical opinion on the case before readmission. The main need here is to get the child away from contact with other pupils as soon as possible. It is desirable to notify the proper health authorities of what disease is suspected, or failing this to call the matter to the attention of the school physician, if there is one, for his opinion. If there is a school nurse, she can often assist in handling the

WOOD-ROWELL COMMUNICABLE DISEASE REPORT

YEAR 19_____ SCHOOL_____ ROOM_____ GRADE____ TEACHER_____

DISEASE	SEPT.			OCT.			NOV.			DEC.			JAN.			FEB.			MAR.			APR.			MAY			JUNE			TOTAL		
	S	O	?	S	O	?	S	O	?	S	O	?	S	O	?	S	O	?	S	O	?	S	O	?	S	O	?	S	O	?	S	O	?
CHICKEN POX																																	
DIPHTHERIA																																	
GERMAN MEASLES																																	
MEASLES																																	
MUMPS																																	
SCARLET FEVER																																	
WHOOPING COUGH																																	

SOURCE CODE: S=IN SCHOOL; O=OUTSIDE OF SCHOOL; ?=DOUBTFUL

DISEASE	SEPT.			OCT.			NOV.			DEC.			JAN.			FEB.			MAR.			APR.			MAY			JUNE			TOTAL		
	S	O	?	S	O	?	S	O	?	S	O	?	S	O	?	S	O	?	S	O	?	S	O	?	S	O	?	S	O	?	S	O	?
IMPETIGO																																	
ITCH																																	
LICE (HEAD)																																	
PINK EYE																																	
POISON IVY																																	
RINGWORM																																	
SPECIAL																																	
RESPIRATORY DISEASES Any cold or other infection of the air passages resulting from these																															TOTAL ATTENDANCE POSSIBLE (DAYS) TOTAL ABSENCES % ABSENCE (DAYS) FROM CONTAG. DIS. ... % RESPIR. DIS. ... % ... %				

FIG. 47. Both sides of a yearly report 5″ × 8″. Used for report of room, school, or school system. (From "Health Through Prevention and Control of Disease," copyright by the World Book Company, Yonkers, N. Y.

problem. The relation of contagious cases to the supply of milk and certain other foods is important, and for this reason the local health authorities should be in early possession of facts, even based on what we might call "lay diagnosis."

In many rural communities the teacher actually performs most functions of nurse and physician and therefore has considerably more responsibility than the teacher is a highly organized system where assistance is at once available.

An isolation room should be provided in all rural schools. In any case the general principles of action are the same as in urban schools, the only difference being in the method of carrying them out.

OFFICE OF BOARD OF EDUCATION
ALBANY, N. Y.

Health Direction in the Public Schools

CONTAGIOUS DISEASES

School_____ For Month of_____ 191____

Room or Grade	Name	Address	Disease	Reason for Exclusion. (Record as "Disease" or "Contact")	Date of Exclusion	Date of Return

FIG. 48. New York State. 5" × 7¾" card, top and bottom of which are shown in illustration. An excellent record giving information often needed for statistical studies.

STANDARDS OF EXCLUSION AND READMISSION

The following diseases are considered in the common communicable group: Mumps, Measles, Whooping-cough, Scarlet Fever, Diphtheria, Chickenpox, German Measles, Infantile Paralysis, Smallpox.

The rules for exclusion and readmittance vary according to state and local laws and customs but in general are based on the average course and character of the disease in question, plus the incubation period. Regulations must consider safety first and afterwards avoidance of loss of attendance as far as possible.

The following tables were made by groups of health officers in Massachusetts and are offered for guidance only in that state by the Dept. of Public Health.

Minimum period of isolation.

Anterior poliomyelitis, 28 days from onset of disease, and thereafter until acute symptoms have subsided.

Chickenpox, fourteen days from the onset of the disease and thereafter till all skin lesions are healed.

Diphtheria, ten days from onset of disease, and thereafter till two negative (successive) cultures, taken at least 24 hours apart, from both nose and throat, have been obtained.

Epidemic cerebrospinal meningitis, fourteen days from the onset of the disease and thereafter until all acute symptoms have ceased.

German measles, seven days from the onset of the disease and thereafter until all symptoms have ceased.

Measles, ten days from the onset of the disease, and thereafter until all symptoms have ceased.

Mumps, twenty-one days from onset of disease.

Scarlet fever, twenty-eight days from the onset of the disease and thereafter till all infective discharges from nose and throat, ear or abscesses have ceased.

Whooping-cough, thirty-five days from onset of disease.

Maximum incubation periods.

	Days
Anterior poliomyelitis	14
Chickenpox	21
Diphtheria	8
Epidemic cerebrospinal meningitis	10
Measles	14
Mumps	21
Scarlet fever	8
Smallpox	21
Whooping-cough	14

New York City has adopted the following periods of quarantine:

(*a*) Diphtheria, twelve days from onset, during which time no cultures will be examined; after which, until two consecutive cultures, taken not less than twenty-four hours apart, and preferably from both nose and throat, fail to show the presence of diphtheria bacilli.

(*b*) Scarlet fever, thirty days after the onset of the first symptoms, provided discharges from nose and ears have ceased.

(*c*) Cerebrospinal meningitis, fourteen days from the onset.

(*d*) Acute anterior poliomyelitis, three weeks from the date of onset.

(*e*) Typhoid fever, until ten days after the patient's temperature reaches normal, and thereafter, until two specimens of feces, collected at least twenty-four hours apart, are found to be free from the presence of typhoid bacilli (as amended by the Board of Health, Dec. 31, 1919).

The maximum period of incubation is as follows:

(*a*) Diphtheria, seven days;
(*b*) Scarlet fever, seven days;
(*c*) Cerebrospinal meningitis, seven days;
(*d*) Acute anterior poliomyelitis, two weeks;
(*e*) Typhoid fever, two weeks;
(*f*) Smallpox, twenty-one days;
(*g*) Measles, fourteen days.

DEPARTMENT of HEALTH

THE CITY OF NEW YORK

BUREAU OF PREVENTABLE DISEASES

Every school teacher or pupil who is a member of a family in which a case of Diphtheria, Scarlet Fever, Cerebro-Spinal Meningitis or Acute Poliomyelitis has occurred must be excluded from school until readmitted by the Department of Health. Children and teachers with Measles are excluded from school, but are permitted to return five days after the appearance of rash, provided the rash and all catarrhal discharges have disappeared. Those who have had Measles may continue at school. Those who have not had Measles are excluded from school until fourteen days after the date of last exposure. Private physicians are authorized by the Department of Health to readmit children or teachers who have suffered from or have been exposed to Measles. In cases of German Measles, Chickenpox, Whooping Cough and Mumps, only the sick child is to be excluded. In cases of Smallpox, all teachers and pupils residing in the building must be excluded.

School children exposed to an infectious disease will be given a special certificate readmitting them when regulations of the Department of Health are complied with. Applications should be made at the Branch Office of the district in which the pupil resides.

FIG. 49. The rules above are printed on the daily report of cases of contagious diseases, prepared and distributed daily by the Department of Health, New York City. The rules are exceedingly simple.

The system of colored cards used in the Horace Mann Schools and other important New York private schools (approved by the New York City Board of Health) provides satisfactory forms which:

1. Require a minimum of clerical work;

2. Contain a maximum of information by means of which the parents and the school may know at once under what conditions and approximately when any child ill with a contagious disease or any child exposed to such a disease may return to school. Nevertheless these regulations are as brief and simple as first-class standards of control will permit.

These cards are three inches by five inches. A form for a Physician's Certificate is printed on the back of each card. This system offers the least interferences with attendance but requires a well-functioning school health system to carry out such special provisions as allowing a non-immune child exposed to measles to remain in school for seven days and then excluding him from the eighth to the fifteenth day after exposure.

In less highly organized schools, less complicated methods are better, such as the standards found in the New York, Virginia, or Boston, Massachusetts, tables.

The school system is expected to observe whatever contagious disease regulations have been adopted by the city and the state. The tables and suggestions in this chapter are provided (1) for models, should changes in regulations be contemplated; and (2) to show standards now in satisfactory use.

MATTHIAS NICOLL, JR., M. D.
Commissioner

NEW YORK STATE DEPARTMENT OF HEALTH

COMMUNICABLE DISEASES AMONG CHILDREN

RULES FOR EXCLUSION FROM SCHOOL

Issued by the
Division of Communicable Diseases

Disease	Common Early Signs and Symptoms	Method of Infection	Exclusion from School * *					Remarks
			1	2 Other Children of Same Household			3	
			Patient	If patient remains isolated at home		If patient goes to hospital or children leave home when disease is discovered	Other children especially exposed ("contacts")	
				Nonimmunes	*Immunes	Nonimmunes / Immunes		
CHICKENPOX	Rarely begins with fever. Rash appears on second day as small pimples, which in about a day become filled with clear fluid. This fluid becomes yellow colored, a crust forms and the scab falls off in about 14 days. Successive crops appear until tenth day and at height of disease papules, vesicles and scabs appear upon the same skin area	Contact with discharges from nose and throat of a patient	Until all scabs are shed and disinfection of person; at least 12 days from onset	Yes Until termination of quarantine	No	Subject to local regulations / No	Subject to local regulations	A mild disease and seldom any after effects. Important because of possible confusion with smallpox
DIPHTHERIA	Onset may be rapid or gradual. The back of the throat, tonsils, or palate may show patches. The most pronounced symptom is sore throat. May simulate simple tonsilitis. In nasal cases bloody discharge from the nose often occurs. Croup or difficult breathing occurs in laryngeal cases, but there may be no patches in the throat. Children may be made immune against diphtheria by toxin-antitoxin. Ask the medical inspector or the health officer for further information about it	Contact with discharges from nose and throat. Milk may convey infection. Often spread through mild, unrecognized cases, or by persons harboring the germs of the disease, though giving no evidence of having had an attack of diphtheria (carriers)	Until recovery and two successive cultures from throat and nose at least 24 hours apart contain no diphtheria bacilli; cultures not to be taken until 9 days from date of onset	Yes Until termination of quarantine or removal from quarantined premises and until 2 successive cultures from the throat and nose at least 24 hours apart show no diphtheria bacilli	Yes Until termination of quarantine or removal from quarantined premises and until a culture from the throat and nose contain no diphtheria bacilli	Yes Until 2 successive cultures from throat and nose, taken after removal and at least 24 hours apart show no diphtheria bacilli / Yes Until a culture from throat and nose, taken after removal, is negative	Until 2 successive cultures from throat and nose, at least 24 hours apart, are negative	Very dangerous, both during attack and from after effects. When diphtheria occurs in a school all children suffering from sore throat should be excluded and the health officer notified. The medical school inspector or health officer should take cultures from intimate contacts. If a second case occurs in the same room, cultures should be taken from all in room. There is great variation of type and mild cases are often not recognized, but are as infectious as severe cases. Cases regarded as ordinary "sore throat" often start epidemics. Tonsilitis cases must have a certificate before returning to school.
EPIDEMIC CEREBRO-SPINAL MENINGITIS	Onset gradual or abrupt, with fever, headache and stiffness of neck	Contact with discharges from nose and mouth of a patient or carrier	Until two weeks after temperature has become normal, *or* until 3 successive cultures from nasopharynx at intervals of not less than 5 days are negative	Yes 1 week from termination of quarantine	Yes 1 week from termination of quarantine or upon removal from quarantined premises	Yes 1 week from date of removal / Yes 1 week from date of removal	Yes For 2 weeks from date of exposure *or* until a negative culture has been secured	Infection apparently conveyed chiefly by carriers, hence necessity of excluding those who have been in close contact with patient, *Cultures require special apparatus and technique*
MEASLES	Begins with fever followed by symptoms like cold in the head, with running nose, sneezing, inflamed and watery eyes and fever. Mulberry-tinted spots appear about the third day; rash first seen behind the ears, on forehead and face. The rash varies with heat; may almost disappear if the air is cold, and come out again with warmth	Contact with discharges from nose and mouth of a patient, especially in the early days of the disease before the rash appears	Until recovery and disinfection of person; *at least 7 days from onset*	Yes Until termination of quarantine and at least 14 days from date of complete isolation of patient	No	Yes 14 days from date of removal / No	If nonimmune exclude from school from 7th day after *first* exposure to 14th day after *last* exposure	After effects often severe. Period of greatest risk of infectivity three days before the rash appears. Great variation in type of disease. Especially dangerous in children under 2 years of age. During an outbreak all children having a temperature over 99° F. should be sent home and the health officer notified
MEASLES (GERMAN)	Illness usually slight. Onset sudden. Lymph nodes in back of neck enlarged. Rash often first thing noticed. Cold in head not a prominent symptom. May have fever, sore throat, and the eyes may be inflamed. Rash variable; may resemble measles or scarlet fever, or both	Contact with discharges from nose and mouth of a patient	Until recovery and disinfection of person; at least 7 days from onset	Yes Until termination of quarantine	No	Subject to local regulations / No	Subject to local regulations	After effects slight. Regulations strict, because frequently confused with scarlet fever

MUMPS	Onset may be sudden, beginning with fever and pain about the angle of the jaw. The parotid glands become swollen and tender. Opening the mouth is accompanied by pain	Contact with discharges from nose and mouth of a patient	Two weeks after onset and one week after disappearance of swelling and after disinfection of person	Yes Until termination of quarantine	No	Subject to local regulations	No	Subject to local regulations	Very infectious. Inflammation of genital organs of male or female may occur
POLIOMYELITIS (INFANTILE PARALYSIS)	Onset sudden, fever, dull pain on bending neck forward, pain on being handled, headache, vomiting. Sometimes sudden development of weakness of one or more muscle groups	Apparently contact with discharge from nose, throat or bowels of a patient or carrier	Until patient is recovered and disinfection of person; at least 21 days from date of onset	Yes Until 14 days after quarantine has been raised	Yes 1 week from termination of quarantine or removal from quarantined premises	Yes 14 days from date of removal	Yes 1 week from date of removal	If nonimmune 14 days from date of last exposure	Disease is most communicable in the early stages. After effect usually paralysis of certain muscle groups, transitory or permanent. Death is due usually to paralysis of respiratory muscles
SCARLET FEVER	Onset usually sudden, with headache, fever, sore throat, and often vomiting. Usually within twenty-four hours the rash appears as fine, evenly diffused, and bright red dots under skin. The rash is seen first on the neck and upper part of chest, and lasts 24 hours to ten days, when it fades and the skin peels in scales, flakes, or even large pieces. May have sore throat without rash (so-called "scarlatina sore throat")	Contact with discharges from nose and mouth, suppurating glands or ears of a patient. Milk may convey infection. Often spread through mild, unrecognized cases	At least 30 days from onset and until discharges have ceased, and disinfection of person	Yes Until seven days after quarantine has been raised	Yes Until termination of quarantine or removal from quarantined premises	Yes Seven days from date of removal	Yes Seven days from date of removal.	If nonimmune until 7th day from date of last exposure	Dangerous both during attack and from after effects. Great variation in type of disease. Slight attacks are as infectious as severe ones. Many mild cases not diagnosed and many concealed. A second attack is rare. When scarlet fever occurs in a school, all cases of sore throat should be sent home and health officer notified. Most fatal in children under ten years.
SMALLPOX	Onset sudden usually with fever and severe backache. About third day upon subsidence of constitutional symptoms there develop red shot-like pimples, felt below the skin, and seen first about the face and wrists and most on exposed surfaces. They form little blisters and after two days more become filled with yellowish matter. Scabs form which begin to fall off about the fourteenth day	Contact with discharges from nose and mouth, and contents of pustules	Recovery and disinfection of person; at least 14 days from onset	Yes Until 20 days after quarantine has been raised *or* 7 days after successful vaccination and after disinfection of person, if removed from quarantined premises	Yes Until termination of quarantine or removal from quarantined premises	Yes Until 21st day after removal, or 7 days after successful vaccination and after disinfection of person	No	Exclude 20 days unless successfully vaccinated within 5 years in which case may return at once	Particularly infectious. When smallpox occurs in connection with a school all exposed persons who have not been successfully vaccinated within 5 years must be vaccinated or quarantined for a period of 20 days Cases of modified smallpox may be, and often are so slight as to escape detection. Existence of disease may be concealed. A severe type of infection may result from exposure to a mild case.
SEPTIC SORE THROAT	Begins with sore throat and weakness. Throat diffusely reddened and may show patches like diphtheria	Discharges from nose and mouth of a patient Infection most often disseminated through milk	Until 5 days after disappearance of symptoms	Yes Until termination of quarantine or removal from quarantined premises	No	No	No	No	Often leads to serious results, affections of glands, heart, kidneys, etc. Very apt to occur in epidemics due to milk contaminated by a patient suffering from the disease.
WHOOPING COUGH	Begins with cough which is worse at night. Symptoms may at first be very mild. Characteristic "whooping" develops in about 2 weeks, and the spasm of coughing sometimes ends with vomiting	Discharges from nose and mouth of a patient	Eight weeks from onset or until 1 week after last characteristic cough	Yes Until termination of quarantine and 14 days from date of complete isolation of patient. Extend if cough develops	No	Yes Until 14 days after removal. Extend period if cough develops	No	If nonimmune 14 days from date of last exposure. Extend period if cough develops	After effects often very severe and disease causes great debility Relapses are apt to occur. Second attack rare. Specially infectious for first week or two. If a child vomits after a paroxysm of coughing, it is probably suffering from whooping cough Great variation in type of disease Often fatal in young children, and the weak and aged

* Immunes are those who have had the disease, or, in smallpox, have been successfully vaccinated, or in diphtheria have had a negative Schick test.

** The above rules for exclusion from school were adopted by the State Commissioner of Education after consultation with the State Commissioner of Health.

DISINFECTION: The cleansing and disinfection of the person includes washing the entire body and the hair with soap and water; thorough brushing of the teeth; rinsing the mouth and gargling the throat, and, finally, a complete change of clothing (or a change of underwear and a thorough shaking and brushing of the outer garments out of doors before they are put on again).

NOTE WELL: Pupils returning to school after an attack of any of the above diseases or after an attack of *tonsilitis*, *scabies* or *trachoma*, must present a certificate from the attending physician. With the exception of these last three diseases, the certificate must be countersigned by either the health officer or the school medical inspector. (See Section 575 of the Education Law and Regulation 26 of the Sanitary Code.)

FIG. 50. The classic tabulated statement of facts about contagious disease. Virginia and the School of Education, University of Chicago, have excellent charts of this type, original is 15″ × 18½″.

CHICKEN POX (VARICELLA)

After an attack of this disease pupils may return to school when crusts have fallen off, and scabs are healed.

No restrictions are placed on other members of the family, except that children exposed must be carefully inspected daily before going to school, for spots on the body or of mucous membrane of the throat.

FIG. 51. Yellow. Latest form.

(CHICKEN POX VARICELLA)

I. After an attack of this disease pupils may not return to school until two weeks after the appearance of the eruption, and until the crusts have fallen and the scars are completely healed, and until after careful disinfection.

II. 1. *a. Pupils of the same family who have not had this disease, if they remain at home,* may not return to school during the existence of the case, nor until the twenty-second day after the last exposure, and after careful disinfection.

b. Pupils of the same family who have had this disease, if they remain at home and the case is properly isolated, may return to school immediately after careful disinfection.

2. *a. Pupils of the same family who have not had this disease, if at once withdrawn from the home* in which the disease exists, may after careful disinfection return to school on the third day; they will then be excluded from the eleventh until the twenty-second day.

b. Pupils of the same family who have had this disease, if at once withdrawn from the home in which the disease exists, may return to school immediately after careful disinfection.

III. *a. Children exposed at school or elsewhere* who have not had this disease may remain at school for ten days after exposure; they will then be excluded from the eleventh until the twenty-second day.

b. Children exposed at school or elsewhere who have had this disease may return to school immediately.

NOTE: By careful disinfection is meant a change of clothing after washing the entire body and hair with soap and water; brushing the teeth; and rinsing the mouth, gargling the throat and douching or spraying the nose with an antiseptic solution.

FIG. 52. Yellow card. Older and more conservative card. Now used in Horace Mann School.

DIPHTHERIA AND MEMBRANOUS CROUP.

Susceptibility to diphtheria can be scientifically determined by the Schick test, which is simple, painless, and without any danger.

Susceptible individuals can be rendered immune in the great majority of cases by the use of the so-called toxin-antitoxin injections, which are best given in three single injections, a week apart.

I. After an attack of this disease no pupil may return to school until cultures from the throat and nose on two successive days have proved the absence of the infectious bacteria.

II. 1. *Pupils of the same family, whether they have or have not had this disease, if they remain at home* may not return to school during the existence of the case. At its conclusion pupils may return if immunized or Schick negative, after cultures from the nose and throat on the two preceding days have been proved negative. If not immunized, or are Schick positive, they may return on the fifth day, provided examination of cultures from nose and throat on the two preceding days have proved negative.

2. *Pupils of the same family, whether they have or have not had the disease, if at once withdrawn* from the house where the disease exists, may return to school if immunized or Schick negative, after cultures from the nose and throat on two preceding days have proved negative. If not immunized, or Schick positive, on the fifth day, provided cultures from the nose and throat on the two preceding days have proved negative.

III. *Children exposed at school or elsewhere, whether they have or have not had the disease, if immunized or Schick negative,* may return to school if cultures from the nose and throat on the two preceding days have proved negative. If not immunized, or Schick positive, on the fifth day, if cultures from the nose and throat on two preceding days have proved negative.

Careful disinfection will be required before any pupil will be permitted to return to School.

NOTE: By careful disinfection is meant a change of clothing after washing the entire body and hair with soap and water; brushing the teeth; and rinsing the mouth, gargling the throat and douching or spraying the nose with an antiseptic solution.

FIG. 53. White card.

GERMAN MEASLES (RUBELLA)

I. After an attack of this disease, pupils may return to school on the eighth day after the appearance of the eruption, provided desquamation has entirely ceased, and after careful disinfection.

II. 1. *a. Pupils of the same family who have not had this disease, if they remain at home,* may not return to school during the existence of the case, nor until the twenty-second day after the last exposure, and after careful disinfection.

b. Pupils of the same family who have had this disease, if they remain at home, and the case is carefully quarantined, may return to school immediately after careful disinfection.

2. *a. Pupils of the same family who have not had this disease, if at once withdrawn from the home* in which the disease exists, may, after careful disinfection, return to school on the third day; they will then be excluded from the tenth until the twenty-second day.

b. Pupils of the same family who have had this disease, if at once withdrawn from the home in which the disease exists, may return to school, after careful disinfection.

III. *a. Children exposed at school or elsewhere* who have not had this disease may remain at school for nine days after exposure; they will then be excluded from the tenth until the twenty-second day.

b. Children exposed at school or elsewhere who have had this disease may return to school immediately.

NOTE: By careful disinfection is meant a change of clothing after washing the entire body and hair with soap and water; brushing the teeth; and rinsing the mouth, gargling the throat and douching or spraying the nose with an antiseptic solution.

FIG. 54. Pale green card.

INFANTILE PARALYSIS (POLIOMYELITIS)

After an attack of this disease pupils may return to school in six weeks after the initial symptoms.

II. 1. *a. Pupils of the same family who have not had this disease, if they remain at home,* may not return to school during the existence of the disease nor until two weeks after the last exposure and after careful disinfection.

b. Pupils of the same family who have had this disease, if they remain at home, will also be excluded from school during the existence of the case, and until two weeks after the last exposure and after careful disinfection.

2. *a. Pupils of the same family who have not had this disease, if at once withdrawn from the home* in which the disease exists, may after careful disinfection return to school on the fifteenth day.

b. Pupils of the same family who have had this disease, if at once withdrawn from the home in which the disease exists, may return to school on the fifteenth day after careful disinfection.

III. *a. Children exposed at school* will be excluded from school for two weeks.

NOTE: By careful disinfection is meant a change of clothing after washing the entire body and hair with soap and water; brushing the teeth; and rinsing the mouth, gargling the throat and douching or spraying the nose with an antiseptic solution.

FIG. 55. Light brown card.

MEASLES (RUBEOLA)

I. After an attack of this disease, no pupil may return to school until fourteen days after the appearance of the rash, and the complete disappearance of the catarrhal symptoms, and until after careful disinfection.

II. 1. *a. Pupils of the same family who have not had this disease, if they remain at home,* may not return to school during the contagious stage of the case, nor until the fifteenth day after the last exposure to it during this stage, which is to be considered at an end one week after the appearance of the rash, provided all catarrhal discharges are over. There should be careful disinfection.

II. 1.*b. Pupils of the same family who have had this disease, if they remain at home and the case is properly isolated,* may return to school immediately after careful disinfection.

2. *a. Pupils of the same family who have not had this disease, if at once withdrawn* from the home in which the disease exists, may, after careful disinfection, return to school on the fifteenth day.

b. Pupils of the same family who have had this disease, if at once withdrawn from the home in which the disease exists, may return to school immediately after careful disinfection.

III. *a. Children exposed at school or elsewhere who have not had this disease* may remain at school for seven days after exposure; they will then be excluded from the eighth until the fifteenth day.

b. Children exposed at school or elsewhere who have had this disease may return to school immediately.

NOTE: By careful disinfection is meant a change of clothing after washing the entire body and hair with soap and water; brushing the teeth; and rinsing the mouth, gargling the throat and douching or spraying the nose with an antiseptic solution.

FIG. 56. Pink card.

MUMPS (INFECTIOUS PAROTITIS)

I. After an attack of this disease pupils may return to school in one week after the disappearance of the swelling, and after careful disinfection; the contagious stage is considered over with the disappearance of the swelling.

II. 1. *a. Pupils of the same family who have not had this disease, if they remain at home,* may not return to school during the existence of the case, nor until the twenty-second day after the last exposure to it while the swelling was present, and after careful disinfection.

b. Pupils of the same family who have had this disease, if they remain at home, may return to school immediately *provided the case is carefully quarantined,* and after careful disinfection.

2. *a. Pupils of the same family who have not had this disease, if at once withdrawn from the home* in which the disease exists, may, after careful disinfection, return to school on the third day and remain until the fifteenth day; they will then be excluded until the twenty-second day after exposure.

b. Pupils of the same family who have had the disease, if at once withdrawn from the home in which the disease exists, may return to school immediately after careful disinfection.

III. *a. Children exposed at school* or elsewhere who have not had this disease, may remain at school for fourteen days; they will then be excluded from the fifteenth until the twenty-second day after exposure.

b. Children exposed at school or elsewhere who have had this disease may return to school immediately.

NOTE: By careful disinfection is meant a change of clothing after washing the entire body and hair with soap and water; brushing the teeth; and rinsing the mouth, gargling the throat and douching or spraying the nose with an antiseptic solution.

FIG. 57. Gray card.

SCARLET FEVER (SCARLATINA)

I. After an attack of this disease, no pupil may return to school until five weeks after the first manifestation of the disease, whether mild or severe; and until desquamation is complete; and all catarrhal symptoms or purulent discharges shall have ceased; and until after careful disinfection.

II. 1. *a. Pupils of the same family who have not had this disease,* if they remain at home, may not return to school during the existence of the case, nor until the 8th day after the last exposure, and after careful disinfection.

b. Pupils of the same family who have had this disease, if they remain at home, may not return to school during the existence of the disease, not until after careful disinfection.

2. *a. Pupils of the same family who have not had this disease, if at once withdrawn* from the home in which the disease exists, may return to school on the 8th day.

b. Pupils of the same family who have had this disease, if at once withdrawn from the home in which the disease exists, may return to school immediately after careful disinfection.

III. *a. Children exposed at school or elsewhere* who have not had this disease may return to school on the 8th day.

b. Children exposed at school or elsewhere who have had this disease may return to school immediately.

NOTE: By careful disinfection is meant a change of clothing after washing the entire body and hair with soap and water; brushing the teeth; and rinsing the mouth, gargling the throat and douching or spraying the nose with an antiseptic solution.

FIG. 58. Crimson card.

WHOOPING COUGH (PERTUSSIS)

I. After an attack of this disease pupils may not return to school for six weeks and until one week after the last characteristic cough, and after careful disinfection.

II. 1. *a. Pupils of the same family who have not had this disease, if they remain at home,* may not return to school during the contagious stage of the case, nor until fourteen days after the last exposure to it during this stage, which is considered at an end three weeks after onset of the whoop; that is providing the child has not developed a cough in the meantime.

b. Pupils of the same family who have had this disease, if they remain at home and have no cough, may return to school immediately, provided the case is properly quarantined, and after careful disinfection.

2. *a. Pupils of the same family who have not had this disease, if at once withdrawn* from the home in which the disease exists, may return to school after fourteen days, if no cough or catarrhal symptoms have developed and they have been carefully disinfected.

b. Pupils of the same family who have had this disease, if at once withdrawn from the home in which the disease exists, may return to school immediately after careful disinfection.

III. *a. Children exposed at school or elsewhere who have not had this disease* will be excluded from school for fourteen days after exposure, when they may return, provided no cough has developed.

b. Children exposed at school or elsewhere who have had this disease may return to school immediately.

NOTE: By careful disinfection is meant a change of clothing after washing the entire body and hair with soap and water; brushing the teeth; and rinsing the mouth, gargling the throat and douching or spraying the nose with an antiseptic solution.

FIG. 59. Pale blue card.

THIS CERTIFICATE, DULY FILLED BY THE ATTENDING PHYSICIAN, MUST BE PRESENTED FOR EACH CHILD ON OR BEFORE THE RETURN TO SCHOOL AFTER ILLNESS FROM A CONTAGIOUS DISEASE.

This Certifies that _____

has fully recovered from an attack of _____

_____ was taken ill

on _____

_____, and in my opinion there

is no further danger of the child carrying contagion.

_____

Attending (or Examining) Physician.

Date _____

(OVER)

FIG. 60. Physician's certificate. On the reverse side of all this series of cards.

CONTROL OF DIPHTHERIA

The Schick Test and the Toxin-antitoxin immunizations have long ceased to be experimental and the up-to-date school system must provide for this work among the pupils. Whether it shall be done by the Board of Health or by the schools is a matter for local decision. If the school population is large enough an epidemiologist may be added to the staff for this purpose alone, as in Boston.

Park and Zingher's series promises an immunity of at least eleven years if conditions are fulfilled and as yet the upper limit or lower limit of immunity can not be expressed other than this.

The test is performed by injecting test material into the skin of the palmar aspect of the forearm and control material into the skin of the other forearm. Usually the right arm is used for the test and left for the control. Where the Dick and Schick Test are given simultaneously (1) the Schick Test is given over the biceps on the upper arms; (2) one arm is used for each test; or (3) one test is placed above the other on the forearms—the locations being noted.

The test material consists of: (1) The toxin—this is used in the test to decide whether the case is positive or negative. It is injected intradermally. (2) Heated toxin—the toxin has been inactivated by heat and only the bacterial and other proteins remain. This material is injected intradermally in the other arm from the one used for the toxin and is used to test protein sensitivity. In many cases which have had diphtheria recently and which show a negative test to the disease, the pseudo reaction attributable to the bacterial protein sensitivity will be marked. The amount of each material to be used and the method of dilution are described in the circulars with the test material.

Any physician who does the test should familiarize himself with the test and "reading" through observation of the work of an expert. The most

difficult reading is the pseudo, since both arms have red spots and a comparison of shades of color is necessary to decide whether a pseudo or combined reaction is present.

Four types of reactions are found:

1. Positive, where the arm injected with test material (toxin) shows definite redness in varying degrees but no redness takes place on the arm injected with the heated toxin or control material. In strong reactions, pigmentation and peeling at the point of inoculation occur.

2. Combined, where both arms are red but the redness of the test arm is most marked in the center of the field and the periphery shows redness of the same degree and shade as on the control arm. This is a positive reaction plus a reaction due to sensitiveness to the bacterial protein. This group will have a more marked reaction to immunizing injections than the simple positives, owing to the bacterial protein in the T. A. The $\frac{1}{10}$ $L+$ or the toxoid (explained elsewhere) lessen this reaction.

3. Negative, no reaction either arm.

4. Pseudo, exactly the same reaction both arms. This is the most difficult reading to make. If there is any doubt the arm should be read "combined." The pseudo reaction is entirely due to the bacterial and other protein and is a negative one.

Note. The small hematoma the size of a pinhead, seen at the point of inoculation, does not indicate any degree of reaction.

Degree of reactions. Zingher classifies these in the same manner as the Dick Test, page 157, to which the reader is referred.

Appearance of reaction. It can be read in 24 hours and this is done where diphtheria is suspected in a member of the household, where inoculations with antitoxin should be given because of the time required for obtaining immunity with the T. A. The antitoxin immunity is only temporary however, as compared with the T. A. or toxoid. The reaction is at its height in about four days and may be read very satisfactorily at the end of a week, at which time all pseudos will have disappeared and the crinkling and peeling of the skin over the point of inoculation in the positive case, will be well-marked, as will the pigmentation.

The skilled "reader" will often be able to recognize the positive Schick Test after six months owing to the slow disappearance of the pigmentation. This fact is of great value where no accurate records are available promptly.

Sterilization of needles and syringes. An electric sterilizer of small size is needed to sterilize needles and syringes before beginning the testing of a group. Between cases, the needles may be reboiled or may be sterilized in alcohol.

Specific directions accompany the test and inoculation material and must be carefully observed. An excellent but somewhat expensive outfit is made by the MacGregor Instrument Co., of Needham, Mass.; but a one c.c. Record or Luer syringe with carefully fitted needles of gauge twenty-six by $\frac{1}{4}$ inch for the test and of gauge twenty-four by about $\frac{7}{8}$ inch for the inoculations or approximately these sizes will be perfectly satisfactory. In ordering,

simply specify syringe and needles for the Schick test and for toxin antitoxin inoculations.

Inoculations. These are at least three in number and are given to nonimmunes one week part. Material is injected in the upper arm in the triceps region.

Obtaining material. This is available (often without cost) in many states through the state Department of Health or the city Boards of Health. Commercial preparations are also on the market if state or city material is not to be obtained. All preparations are tested by the Federal Government laboratories as well as by the manufacturers.

The technic is always simple and involves little more work than the average hypodermic injection. The important features are (1) freshness, and known quality of material used, (2) surgical cleanliness of all instruments.

DIPHTHERIA PREVENTION

DEPARTMENT OF HEALTH **NEW YORK CATHOLIC SCHOOL BOARD**

CITY OF NEW YORK

TO PARENTS OR GUARDIANS:

Is your child safe from Diphtheria?

About 12,000 children are reported in this City each year as suffering from diphtheria. Of this number about 1,200 die from the disease. About one-third of the school children are susceptible.

DIPHTHERIA CAN BE PRACTICALLY WIPED OUT BY A NEW METHOD OF VACCINATION.

We can determine those that are safe and those that need the vaccine by a simple test. This test is free from all danger, and will not make your child sick. It requires the placing into the skin, or beneath the skin, of a drop of a test liquid.

If the test shows that your child is safe, nothing further need be done. If it shows that the child may catch the disease, three injections of vaccine given at weekly intervals will almost surely give a life long protection.

The test and the vaccine are harmless, no matter how young the child. The only possible objection, is that the spot on the arm where the vaccine was injected may become red and painful for one or two days. The vaccination can be given at any season of the year

Your child should be protected from Diphtheria now.

DON'T RISK WAITING

If you cannot obtain the services of a private physician, sign the slip attached below and a Health Department physician will apply the test and the remedy.

CONSENT FOR THE ORIGINAL OR THE MODIFIED SCHICK TEST AND IMMUNIZATION.

I hereby consent that.....of.....
(Name) (Address)
may receive from the Department of Health physician the test to determine if the child is liable to contract diphtheria. If found to be in danger of contracting this disease, I consent that the protective and the final immunity test vaccination be given.

Dated, New York,.....192.. .....
(Parent) (Guardian)

FIG. 61. A simple, clear statement of all necessary facts. Original $8\frac{1}{4}'' \times 11''$. A similar form is used in the New York Public Schools.

The arm should be carefully cleansed at the point where the test and inoculations are given. Alcohol, at least, should be used. Tincture of Green Soap and water, followed by alcohol is even better. To repeat, surgical asepsis should be observed in regard to instruments.

The cost per child of testing and inoculating any group varies from ten to fifty cents per injection, test or reading, depending chiefly on what the physician is paid.

Written permission should always be obtained for the test and the parent should understand clearly just what is to be done. The New York City circulars are excellent models and may be modified to suit local needs.

Following the test and the inoculations "trouble slips" are often given to the child to take home (1) in order to avoid parents being needlessly apprehensive over the usual manifestations of the test and inoculations; (2) to furnish them with the name and telephone number of a reputable and experienced person to see the case if parents feel worried and are not satisfied after reading the slip, or in case the child is unusually susceptible and develops a more marked reaction than usual, as shown by local redness, malaise, temporary rise in temperature.

All "wild tales" must be investigated, since they increase in every way through repeated telling. Good work is often brought into disrepute by designing persons where this precaution is neglected.

Speed in this work may be desirable, but care and kindness must never be sacrificed to it. Tact and kindness in handling the children avoids any trouble from the frightened child, who, by the way, should never be tested, lest an exaggerated tale do injury to good reputation. It is unwise to test or immunize any convalescent child or one with some acute disease such as a cold. Any ill health will always be blamed on the test or inoculations under these conditions, no matter how unjustly.

The public, and particularly the parents, should know that a positive Shick Test conveys no protection against disease and that the toxin-antitoxin is really the treatment, the Schick being only a sorting process. Furthermore, it must be clearly understood that at least three injections of the T. A. are required as well as a second Schick Test about six months later in order to be sure of the efficiency of the inoculations. If the test is still positive, further treatments are necessary and the child should not be told the process is completed, until the immunization certificate is given. Many misunderstandings result otherwise and many children thus lose the benefit by only partial completion of the work.

When this preventive work is done, all diphtheria cases discovered in the city should be studied as to the Schick Test record and it will be found that those who take the disease, yet claim they have had the test or the injections, will be persons who have failed to fulfill the conditions required for immunity, usually by not taking the full number of inoculations or not permitting the Schick retest. Under such circumstances they could not be expected to be completely immune and there would be no reason for their not taking the disease.

For pre-school children, because their immunity to diphtheria is less than that of the school child, the custom is to give the immunizing injections with-

out previous test because this saves the child from one slight discomfort and the percentage of non-immunes is so high that the practice is warranted. Personal immunity increases with age but never reaches one hundred percent. Hence the Schick Test and the injections have value at all ages, since the disease attacks all ages.

In general it will take at least ten years of well-planned, careful work in a school system to have a large majority of the children of known immunity. This is due to the shifting of the school population and to the fact that (1) confidence in the test and immunization is aroused gradually and (2) the more backward parents will require a few years of seeing results to desire it. The attitude of the local physicians is imporant since many parents rely on their opinion. Where possible the family physician should be encouraged to do the test, or at least to give the immunizing injection. Most public health officials have found that many physicians are not familiar with the technic, are too busy to learn, and will therefore prefer to let the health physicians handle the matter. Waiting for the family physician to give the immunizations has proved unsuccessful to date. This work should be considered an educational project by the schools but wherever possible should be turned over to family physicians and clinics when they will handle it. Nevertheless, work of this type among school children, whether by the Board of Health, or the Board of Education, is no step toward that impossible bugaboo, "state medicine." These tests and inoculations afford protection to indivdiual children and make schools safer from contagious diseases. Therefore, they may be done in schools without violating "no treatment" rules.

The Schick Test has not met so much of the traditional, silly, misguided opposition, as has vaccination against smallpox. Except for a very few cases which emanated from two or three sources, little trouble has been experienced from the test or the immunizations. The chief opponents seem to be those who are organized for such purposes, plus certain who do not understand the nature of the work, and these latter often become supporters when the true situation is brought before them. General reactions of mild degree are prevalent during the immunizations but those persons with the most severe reactions are (1) among the combined group and (2) those who need the protection the most. The worst cases are comparable only with those found in the use of various vaccines where very definite need for the treatment has existed. If surgical asepsis is used, one need have little fear of any untoward results especially since the reaction to the Schick Test will reveal any special individual idiosyncracies, thus giving any necessary warnings.

Too great significance need not be placed upon the "frozen toxin-antitoxin" incidents of 1924. However, any test or inoculation material of any kind which does not appear normal, or which has undergone any abnormal changes like freezing, should not be used.

Accurate records, easily available for teacher and physician, should be kept and certificates of immunity are desirable, especially should the child transfer to another city. Record of such tests as the Schick and Dick should be part of the school health card.

Forms Used in New York Schick Tests and T. A. Injections[1]

6EN 25-3539-31-h

VACCINATION AGAINST DIPHTHERIA!

DEPARTMENT OF HEALTH. **CITY OF NEW YORK.**

PARENTS! GUARDIANS!

Vaccination against small-pox was a wonderful discovery. Millions of lives have been saved by it. You had your children vaccinated to keep them from getting small-pox. *Now science has won another great victory!* WE CAN NOW VACCINATE YOUR CHILDREN AGAINST DIPHTHERIA, so that they are protected against this terrible disease!

SAVE YOUR CHILDREN FROM DIPHTHERIA!

This is no longer an experiment; it is a certainty! More than 200,000 school children have been protected against diphtheria during the past two years in the public schools of New York City.

This is how it is done:

First, the children are given a very small injection into the skin called the Schick Test to find out if they are liable to catch diphtheria;

Second, those that are found to be liable to catch it are given three injections of a different kind which protects them for many years and probably for life.

YOUNG CHILDREN CATCH DIPHTHERIA MOST EASILY!

Your children who are too young to go to school need protection against diphtheria much more than school children. Young children between 6 months and 6 years of age are especially liable to catch diphtheria and frequently have it in its worst form. Out of every 100 children who get diphtheria, 85 are less than five years of age. These young children are therefore given the protective vaccination injections without any preliminary Schick Test.

DIPHTHERIA PROTECTION IS ABSOLUTELY SAFE!

One of the fine things about this method of protection against diphtheria is that YOUNG CHILDREN ARE NOT MADE SICK BY IT. The younger the children are, the better they take it. Don't wait until your children go to school! Have them vaccinated at once!

DIPHTHERIA IS A DANGEROUS DISEASE AND KILLS MANY CHILDREN!

In 1921 there were over 209,000 cases of diphtheria in the United States, and over 20,000 died from the disease! In this city alone there were 15,761 cases and 871 deaths.

Diphtheria is a treacherous disease. It not only kills many children, but even when they recover many of them are left crippled with heart disease for years if not for life. Nor is the child always protected against diphtheria after one attack.

NEW YORK CITY IS CONQUERING DIPHTHERIA BY THE NEW METHOD!

Since the new prevention methods have been extensively employed in this city, the number of deaths from diphtheria has been reduced from 1,239 in the year 1919 to 871 during 1921. Will you not help reduce the number still further?

YOUR CHILDREN EXPECT YOU TO HELP THEM IN THEIR FIGHT AGAINST DIPHTHERIA!

DON'T DELAY! DON'T WAIT! DO YOUR SIMPLE DUTY BY YOUR CHILDREN! Teachers, doctors, and well-informed people generally are having *their* children vaccinated against diphtheria. Why not have *your* children vaccinated also? Why not have them protected against diphtheria as you have them protected against small-pox?

WILL YOU HELP TO WIPE OUT DIPHTHERIA?

Don't keep this to yourself! If your neighbors' children are too young to go to school, be sure to show them this circular. You may help save other lives!

CHILDREN ARE NOW VACCINATED AGAINST DIPHTHERIA AT THE BABY HEALTH STATIONS!

The Department of Health urges you to go to your private physician to have him vaccinate every one of your children against diphtheria.

IF YOU CANNOT AFFORD THE SERVICES OF A PRIVATE PHYSICIAN, THE DEPARTMENT OF HEALTH WILL GIVE THEM DIPHTHERIA PROTECTION AT THE NEAREST BABY HEALTH STATION.

Ask the nurse at the Baby Health Station when the doctor will be there to vaccinate the children.

GET A DIPHTHERIA CERTIFICATE FOR YOUR CHILD!

A diphtheria vaccination certificate will be given to each child after it has received the three protective injections. This certificate will be of value to your child when beginning school. If at that time a Schick Test shows that your child is surely protected against diphtheria, a special Diphtheria Protection Certificate will be given.

[1] The Horace Mann Permission Slip for Dick and Schick Tests is shown on page 160.

The following is a list of the Baby Health Stations in the City of New York:

I—BABY HEALTH STATIONS.

Borough of Manhattan.

1. 1254 Second Ave. (66th Street)
2. 145 West Street
3. 243 Thompson Street
4. 502 East 87th Street
5. 306 Avenue A
6. 73 Cannon Street
7. 108 Cherry Street
8. 172 East Third Street
9. 326 East 11th Street
10. 513 East 11th Street
11. 241 East 40th Street
12. 348 East 74th Street
13. 205 East 96th Street
14. 225 East 107th Street
15. 315 East 112th Street
16. 10 Moylan Place (126th Street)
17. 126 West 100th Street
18. 342 East 116th Street
19. 437 West 41st Street
20. 345 East 116th Street
21. 174 Eldridge Street
22. 43 East 133d Street
23. 48 Henry Street
24. 197 Hester Street
25. 206 Madison Street
26. 214 Monroe Street
27. 244 Mulberry Street
28. 78 Ninth Avenue
29. 263 Stanton Street
30. 511 West 41st Street
31. 523 East 78th Street
32. 416 East 65th Street
33. 325 Broome Street
34. 27 Barrow Street
35. 27 Suffolk Street
36. 2482 Eighth Avenue
37. 289 Tenth Avenue
38. 114 Thompson Street
39. Henrietta School, 224 W. 63d St.
40. 506-508 West 47th Street
41. 348 East 32d Street (Straus)
42. 322 East 59th Street (Straus)
43. 402 West 37th Street (Straus)
44. Mt. Morris Park (Straus)
45. Tompkins Square Park (Straus)
46. 35 West 139th Street
47. Amsterdam Avenue and 60th Street
48. 453 East 121st Street

Borough of The Bronx.

1. 511 East 149th Street
2. 428 East 133d Street
3. 3173 Villa Avenue (205th Street)
4. 583 Courtlandt Avenue (150th St.)
5. Westchester Ave. and East 150th St.
6. 677 Morris Avenue
7. 290 East 140th Street
8. 2380 Hughes Avenue
9. 1354 Webster Avenue

VACCINATION AGAINST DIPHTHERIA!

DEPARTMENT OF HEALTH. CITY OF NEW YORK.

The doctor will vaccinate the children against Diphtheria on.....during the
(days)

month of.....at the Baby Health Station located at.....
(month)

Hours—Afternoons, from 1 to 4 o'clock.

Referred by .....
(Stamp of Organization)

Per .....
(Name of Nurse)

FIG. 62. Front and back of Vaccination Against Diphtheria circular. Note exact information as to where to go for the test. Emotional appeal. The material in bold face type is impressive. Original size a form page folder, each sheet of which is 8″ × 11″. Printed in English, Italian and Hebrew in one folder. Adapted to the industrial classes.

25-1000-23-Bt. Form 10-F

DIPHTHERIA PREVENTION

DEPARTMENT OF HEALTH DEPARTMENT OF EDUCATION

CITY OF NEW YORK

To Parents:

Most parents expect that at some time or other their children may catch one or more of the common children's diseases, such as chicken-pox, measles, whooping cough, etc. But what parent does not fear two of these diseases: SCARLET FEVER AND DIPHTHERIA! How dangerous these truly are is shown not only by the many deaths they cause, but also by the serious after-effects they are known to leave—effects which may damage the body and ruin health for life.

DIPHTHERIA

It is of diphtheria we speak in particular. It is true that since the discovery of antitoxin much illness from this disease has been prevented and many lives have been spared. Yet the records of the Health Department of this city show what ravages this scourge of childhood still causes.

Here are some of the figures:

Diphtheria; Incidence and Mortality, 1917–22.

Year	Cases	Deaths
1917	12,624	1,158
1918	11,455	1,245
1919	14,014	1,239
1920	14,166	1,045
1921	15,110	891
1922	10,427	874
1923	8,050	547

As recently as December 18, 1920, the Health Department called attention to the continuing excessive number of cases of diphtheria.

For years and years physicians have been experimenting to discover some means of ridding the world of this disease. And why should they not hope to succeed? Two hundred years ago smallpox carried off hundreds of thousands of people yearly, and many of the persons one passed in the street were pockmarked for life. Today we know that vaccination has all but wiped out this dreadful disease, so that a few cases occurring in one year in a city as big as New York are a source of surprise and alarm.

A WONDERFUL DISCOVERY

It should therefore be a source of great joy to parents to learn that as the result of recent discoveries it is now possible to say with certainty that diphtheria can be prevented and that not many years hence there will probably be as little diphtheria then as there is smallpox now.

Those discoveries consist of:

1. A method of preventing those who are liable to diphtheria from ever catching this disease.
2. SCHICK TEST.—A method of finding out whether a child (or grown-up) is liable to get diphtheria or not.

WHAT IS THE SCHICK TEST?

It has been found that there are some children who will never get diphtheria; while others may. In other words, some are immune, while others are not. The purpose of the SCHICK TEST is to find out whether or not a child is immune to diphtheria, that is, whether he is likely to catch the disease or whether he is not.

This is done by giving the child a tiny injection in the skin of the arm and then watching whether a red spot is to be seen on the arm a few days afterwards. By the presence or absence of this spot, the doctor can tell positively which children may get diphtheria and which never will.

If the spot shows that a child may get diphtheria, then it is possible by means of three more injections of a different kind, given about a week apart, to "vaccinate" the child against diphtheria so that he will probably be protected against this disease for the rest of his life.

IS VACCINATION ABSOLUTELY SAFE?

One of the fine things about this method of diphtheria vaccination is that children are not made sick by it, as sometimes happens after smallpox vaccination and often after typhoid vaccination. At the most they may suffer for a day or two from a painful spot in the arm. People who have heard how some of the men in the army suffered after some of the injections they received need have no fear; no child has ever been known to have become ill as a result of the diphtheria vaccination.

PERSONAL EXPERIENCES

Having heard about this test many physicians, school principals and teachers came to the conclusion that if it is so valuable a protection against this serious disease, it was only their duty that their own children should receive the benefit of Dr. Schick's discoveries. They, therefore, had the injections given to them and they stated that they can vouch for the fact that their children did not, as a rule, feel the slightest illness or inconvenience as a result. They can now be sure that their children will never catch diphtheria from a schoolmate or other persons.

FOR THE GOOD OF THE SCHOOL KIDDIES

Their next thought was that what was good for their own youngsters was equally good for the million boys and girls attending the schools in New York City. More especially did they think this

FIG. 63. Front and back of diphtheria prevention circular 8″ × 14″. Note list of test clinics on back of form. Appeal to common sense and intelligence. Adapted to educated persons.

when they considered how many of these children were actually falling victims to this disease. During the period beginning January 1st, 1921, and ending June 30th, 1921, many thousands of school children were sent home because of sore throats which led the school nurse to suspect diphtheria. In New York City during this period 10,722 cases of diphtheria were reported and 611 persons died. Over 17,000 children were excluded from school during the year 1920.

The school authorities have asked the Department of Health to have this test applied free of charge to all those children whose parents would give their consent. The school doctors are ready to extend this great benefit to all the children and will begin to make the test as soon as this permission is granted.

THIS IS YOUR OPPORTUNITY

So we take this occasion to recommend to you in the strongest terms that, when the nurse sends home a slip asking whether you will give your consent in this matter, you will consent to have the **SCHICK TEST** performed. Remember that no child will be given these valuable injections without consent of the parent; **so don't miss this opportunity.** If you are in doubt, ask your doctor, who, if you wish, is ready to perform the **SCHICK TEST** himself. The Department of Health gives a certificate of vaccination against diphtheria to every child receiving the test and injections. Don't you want your children to hold this certificate? Don't you want to know as a positive fact that they have been protected for good against this dangerous sickness?

And, by the way, as children under six years catch diphtheria most easily it is customary to give the injections without the preliminary **SCHICK TEST.** The Test and injections will be given to your children who do not attend school by applying at the nearest **Baby Health Station or Branch Office of the Bureau of Preventable Diseases.**

The following is a list of the Baby Health Stations and Branch Offices of the Bureau of Preventable Diseases in the City of New York:

I—BABY HEALTH STATIONS

BOROUGH OF MANHATTAN

1. 1254 Second Ave. (66th Street)
2. 45 West Street
3. 243 Thompson Street
4. 502 East 87th Street
5. 306 Avenue A
6. 73 Cannon Street
7. 108 Cherry Street
8. 172 East Third Street
9. 326 East 11th Street
10. 513 East 11th Street
11. 241 East 40th Street
12. 348 East 74th Street
13. 205 East 96th Street
14. 225 East 107th Street
15. 315 East 112th Street
16. 10 Moylan Place (126th Street)
17. 126 West 100th Street
18. 342 East 116th Street
19. 437 West 41st Street
20. 343 Pleasant Avenue
21. 174 Eldridge Street
22. 43 East 133rd Street
23. 48 Henry Street
24. 197 Hester Street
25. 206 Madison Avenue
26. 214 Monroe Street
27. 244 Mulberry Street
28. 78 Ninth Avenue
29. 263 Stanton Street
30. 511 West 41st Street
31. 523 East 78th Street
32. 416 East 65th Street
33. 325 Broome Street
34. 27 Barrow Street
35. 27 Suffolk Street
36. 2482 Eighth Avenue
37. 289 Tenth Avenue
38. 114 Thompson Street
29. Henrietta School, 224 W. 63rd St.
40. 506-508 West 47th Street
41. 348 East 32nd Street (Straus)
42. 322 East 59th Street (Straus)
43. 402 West 37th Street (Straus)
44. Mt Morris Park (Straus)
45. Tompkins Square Park (Straus)
46. 35 West 139th Street
47. Amsterdam Avenue and 60th Street
48. 453 East 121st Street

BOROUGH OF THE BRONX

1. 511 East 149th Street
2. 428 East 133rd Street
3. 3173 Villa Avenue (205th Street)
4. 583 Courtlandt Avenue (150th Street)
5. Westchester Avenue and East 150th Street
6. 290 East 140th Street
7. 2380 Hughes Avenue
8. 1354 Webster Avenue

BOROUGH OF BROOKLYN

1. 49 Amboy Street
2. 179 Bedford Avenue
3. 49 Carroll Street
4. 994 Flushing Avenue
5. 184 Fourth Avenue
6. 621 Fourth Avenue
7. 146 India Street
8. 165 Ten Eyck Street
9. 698 Henry Street
10. 167 Hopkins Street
11. 208 Hoyt Street
12. 76 Johnson Avenue
13. 359 Manhattan Avenue
14. 604 Manhattan Avenue
15. 176 Nassau Street
16. 192 Boerum Street
17. 144 Navy Street
18. 129 Osborn Street
19. 323 Osborn Street
20. 2346 Pacific Street
21. 592 Park Avenue
22. 268 South Second Street
23. 233 Suydam Street
24. 2036 Pitkin Avenue

BOROUGH OF QUEENS

1. 114 Fulton Avenue, Astoria, L. I.
2. 22 Maspeth Avenue, Maspeth, L. I.
3. 753 Onderdonk Avenue, Ridgewood, L. I.
4. 224 Prospect Street, Jamaica, L. I.

BOROUGH OF RICHMOND

1. 689 Bay Street, Stapleton, S. I.
2. 79 Jersey Street, New Brighton, S. I.
3. 1765 Richmond Terrace, West Brighton, S. I.
4. 93 Park Avenue, Port Richmond, S. I.

II—BRANCH OFFICES OF THE BUREAU OF PREVENTABLE DISEASES

BOROUGH OF MANHATTAN

1. Chelsea Clinic, 307 West 33d Street
2. Corlears Clinic, 331 Broome Street
3. Jefferson Clinic, Pleasant Avenue and 118th Street
4. Stuyvesant Clinic, 540 East 13th Street
5. Washington Clinic, 128 Prince Street
6. Yorkville Clinic, 439 East 57th Street
7. Riverside Clinic, 481 West 145th Street

BOROUGH OF THE BRONX

1. Mott Haven Clinic, 493 East 139th Street
2. Tremont Clinic, Third Avenue and St. Paul's Place

BOROUGH OF BROOKLYN

1. Bay Ridge Clinic, 5208 Fourth Avenue
2. Brownsville Clinic, 64 Pennsylvania Avenue
3. Eastern District Clinic, 306 South Fifth Street
4. Bedford Clinic, 420 Herkimer Street
5. Prospect Clinic, Fleet and Willoughby Streets

BOROUGH OF QUEENS

1. Corona Clinic, 127 46th Street, Corona, L. I.
2. Jamaica Clinic, 374 Fulton Street, Jamaica, L. I.
3. Queens Plaza Clinic, 128 Hunter Avenue, L. I. City
4. Ridgewood Clinic, 753 Onderdonk Avenue

BOROUGH OF RICHMOND

Richmond Clinic, Bay and Elizabeth Sts., Stapleton, S. I.

FIG. 63, (*Continued.*)

SCHICK TEST AND ACTIVE IMMUNIZATION—AT PUBLIC SCHOOLS

Public School: **Borough:** **Class:**

NAME	AGE	ADDRESS	Result of Schick Test				Toxin-Antitoxin Injections			Re-Schick Test					Certificate Issued			
			Positive + ±	Negative ± −	Pseudo	Combined	1st Date	2nd Date	3rd Date	Date	Result: Positive	Negative	Pseudo	Combined	Successful	Date	Negative Reaction	Date

Inspector

DEPARTMENT OF HEALTH, CITY OF NEW YORK, BUREAU OF CHILD HYGIENE

FIG. 64. The standard Schick and Dick Record form, New York City. Widely copied. Original 11″ × 14″. Both sides the same. Each side has space for twenty-five names. These forms are often bound in books for filing. Only top and bottom of form are shown in the illustration. Deleted part is like bottom.

DEPARTMENT OF HEALTH (FAMILY) P. S. DEPARTMENT OF EDUCATION

NAME AGE CLASS

ADDRESS BOROUGH

SCHICK RESULT REMARKS

RESULTS OF SCHICK TESTS					T-A	INJECTIONS			DATE OF CERTIFICATE
DATE	POS. + +	COMB.	NEG. ± = −	PSEUDO	DATE	NO.	PREP.	AMT.	

CITY OF NEW YORK

FIG. 65. Individual record card. 5″ × 3″. Also used for Dick Test.

BRING YOUR CHILD TO THE

HEALTH DEPARTMENT CLINIC

FOR AN INJECTION TO PROTECT IT AGAINST DIPHTHERIA

1st Injection ..... 2nd Injection ..... 3d Injection .....

DEPARTMENT OF HEALTH, BUREAU OF PREVENTABLE DISEASES

FIG. 66. A blue appointment card. 2½″ × 5″. Very useful as a reminder to children and parents.

DEPARTMENT OF HEALTH—CITY OF NEW YORK

DIPHTHERIA PROTECTION CERTIFICATE

This is to certify that ..... Age .....

residing at ..... is naturally protected against

DIPHTHERIA, as shown by the Schick Test performed on ..... 192....

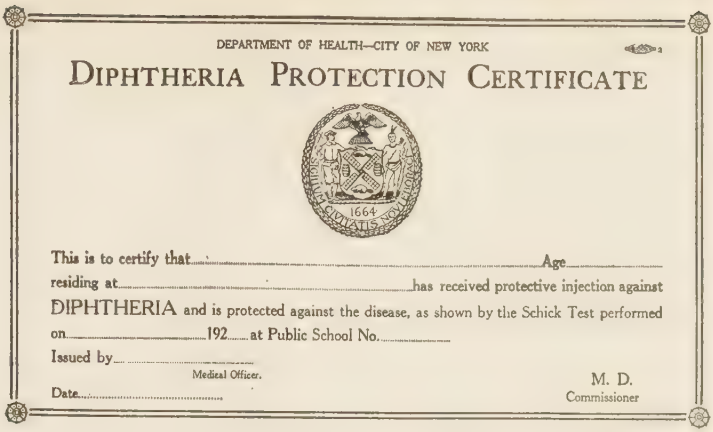
at Public School No. .....

Issued by .....
Medical Officer.

Date .....

M. D.
Commissioner

FIG. 67. Blue certificate of "natural immunity." Paper, 5″ × 8″.



DEPARTMENT OF HEALTH—CITY OF NEW YORK

DIPHTHERIA PROTECTION CERTIFICATE

This is to certify that ..... Age .....

residing at ..... has received protective injection against

DIPHTHERIA and is protected against the disease, as shown by the Schick Test performed

on ..... 192..... at Public School No. .....

Issued by .....

Medical Officer.

Date .....

M. D.

Commissioner

FIG. 68. White certificate printed in blue. Evidence of acquired immunity. A health passport. A similar form is used in preschool work but here the *preliminary* Schick Test is omitted.

AGE SUSCEPTIBILITY TO DIPHTHERIA

The following table is made from reports by Zingher:

(*a*) The Schick Test in Baby Health Stations and Playgrounds in Manhattan and the Bronx:

AGE	PERCENTAGE OF SCHICK POSITIVE REACTIONS
6–7 months	56.5
7–8 months	63.4
8–9 months	83.8
9–10 months	93.1
10–11 months	87.0
11–12 months	91.1
1–3 years	83.2
4–6 years	58.6

(*b*) In Public and Parochial Schools of New York:

AGE, YEARS	PERCENTAGE OF SCHICK POSITIVE REACTIONS
5–6	60.3
6–7	50.4
7–8	43.5
8–9	36.6
9–10	32.2
10–11	29.3
11–12	28.2
12–13	26.6
13–14	23.1
14–15	19.7
15–16	17.8
16–17	18.4

The Schick Reaction in advanced age groups:

Age, Years	Percentage of Schick Positive Reactions Male	Female
10–20	14.7	13.7
20–30	7.8	16.6
30–40	7.5	13.7
40–50	5.8	9.9
50–60	6.5	6.3
60–70	3.3	6.6
Over 70	3.2	6.7

Class susceptibilities. The well-to-do classes are more susceptible because the children are protected from small contact exposures which develop a degree of immunity in children of crowded districts who escape the disease.

Immunizing results. These are measured by the percentage of susceptible persons who become immune against diphtheria and by the persistence of the immunity. The antitoxin develops slowly after the injections are begun and gradually increases. In only a few cases does an appreciable amount of antitoxin develop in less than three weeks after the first injection. The majority respond during the second month. There are a few who become fully immune only during the sixth month. The results in 529 children in New York who were carefully observed were as follows:

Number of doses of 1 c.c. toxin	Number of children	Number of children immune 3 months after injection	Percent immune after 3 months
1	239	175	73
2	89	80	90
3	201	191	95

These figures approximately agree with the New York results in thousands of cases.

Latest developments regarding the Shick Test. An important factor in Schick Tests and T. A. inoculations has been the reaction to the bacterial protein, which represents no value in the test but which has been present in many cases. The Laboratories of the Department of Health of New York City have been developing inoculation material from which most of this protein has been removed. This is known as $\frac{1}{10}$L + mixture of toxin-antitoxin. This has in no way interfered with the efficiency of the inoculations and has greatly lessened any reactions from the serum. Another material known as toxoid where the toxin is neutralized by formalin is being tested in New York and elsewhere.

The Park Test consists of giving the first injection of toxin-antitoxin subcutaneously and noting whether local redness and typical reaction occur. This is possible through the elimination of a large amount of protein from the injected material, so that no confusion with the pseudo reaction arises. By this Test one avoids the intradermal injections necessary for the Shick Test.

THE DICK TEST AND SCARLET FEVER IMMUNIZATION

Within the past year the Dicks of Chicago have reported a test for susceptibility to scarlet fever which closely resembles the Schick Test in theory and practice.

After careful study for fifteen years the Dicks proved definitely that certain strains of the hemolytic streptococcus, always found in the throat in cases of scarlet fever, were the etiological factor, since they have fulfilled Koch's dictum. These strains produce a toxin just as the diphtheria bacillus produces a toxin. The use of this toxin for testing material and for purposes of immunization, plus the discovery of the cause of the disease, has placed an entirely new aspect upon scarlet fever control.

In addition to this, Dochez and the Dicks have produced an antitoxin in the horse, just as the diphtheria antitoxin has been similarly produced, and this antitoxin offers the same type of treatment as that by which the diphtheria antitoxin has so markedly reduced the morbidity in diphtheria.

However, active scarlet fever immunization is unlike the active diphtheria immunization, in that there are both toxic and bacterial phases of the former. The present methods of immunization against scarlet fever deal almost entirely with the toxic phase. This fact holds also for the serum treatment of scarlet fever, which counteracts the toxic effects of the disease but does not eliminate the septic complications.

For the Dick Test, at present, the toxin is obtainable diluted and ready for the test. A heated toxin control is used as in the Schick Test. The reaction is read in 24 hours, and, as in that test, the readings are positive, combined, negative, pseudo.

ZINGHER'S INTERPRETATION OF DICK REACTIONS

Dick Test	Control Test
Test-toxin diluted 1:1,000 contains (*a*) Toxin; (*b*) Various proteins	Test-toxin (1:1,000) heated to 100°C. for 2 hours contains various proteins
Reading of Reactions in Twenty-four Hours	
Positive..... ++, + or ±	−
Negative..... −	−
Negative-pseudo[1]..... +	+
Positive-combined.... ++ or +	± or ±

[1] The pseudo reaction is equal in test and control. It is much less frequent in the Dick Test than the Schick Test.

Zingher uses the following grading for his positives:

++, redness plus induration;

+, redness only;

± ("plus—minus") smaller area of redness;

± ("plus—two minus,") very small area of redness—this last group is usually not given any inoculations. The diameter of the reaction is less than one centimeter. The Dicks report positive reactions in centimeters, the diameter of the area of redness being stated in centimeters. Any reaction less than one centimeter in diameter does *not* indicate susceptibility. "The positive reaction closely resembles at the end of 24 hours a positive Schick

Test which has reached its maximum on the third or fourth day. It appears within 6 to 12 hours, reaches its height at the end of 24 hours, and fades fairly rapidly; a good positive reaction is followed by pigmentation, with very slight or no scaling (wherein it differs from the positive Schick). The pigmentation may persist for a week or longer." (Quotation is from Zingher, except the parenthesis.) "The pseudo reactions are due to autolyzed bacterial substance of the streptococcus and other proteins in the test fluid." These reactions are *not specific*, as individuals who show a pseudo reaction will show similar reactions with the autolyzed protein of streptococci from other sources, such as abscesses, etc.

Zingher emphasizes a point which is equally true with the Schick Test and yet which is sometimes neglected. "The results of the test become very confusing unless a control is made; then the results can be interpreted with little difficulty."

The Dick Test, in addition to its value in preventive work, has been found very valuable for diagnostic purposes, as a positive reaction obtained during the first day or two of a suspicious scarlet-like rash and again two weeks or more after the fading of the rash, will indicate that the patient did not have scarlet fever.

Inoculations are given one week apart. The retest is made in two or three months, to determine the development of antitoxic immunity. The dosage is given at present in so many skin test doses. The reader is referred to the literature for the latest figures. Local reactions are only slight in positive reactors, but more marked in pseudo and combined reactors.

Studies at important medical centers are constantly increasing the confidence in the test.

Apparatus required is the same as for the Schick Test. The same is true for technic to be observed.

The test, as in the case of the Schick Test, should be attempted only by those who carefully familiarize themselves with it through observation of skilled physicians engaged in using it.

Zingher has done remarkable work in New York City which has proved an inspiration and example to other health officials. Several public schools have already been given the opportunity of having the test and inoculations, also at least two private schools.

The forms and letters used in the testing of pupils in the Horace Mann Schools are printed on pages 159 to 161, since such material is almost unavailable at present.

Statistics. These resemble closely those for the Schick Test, the higher social groups being the more susceptible and therefore in greatest need for protection. Zingher[1] reported that in private schools among the well-to-do in New York, 83 percent of the pupils were susceptible up to 18 years, which corresponds to findings in the Schick Test.

[1] Journal of the American Medical Association, Vol. 83, No. 2, p. 86, July 12, 1924.

Horace Mann School
Teachers College
New York

April 28, 1924

To the Patrons of the Horace Mann School:

Many parents have been seriously worried regarding the prevalence of Scarlet Fever in some sections of the city and we feel that they will welcome an opportunity for positive measures against it. Dr. Abraham Zingher, Assistant Director, Bureau of Laboratories, New York City, Department of Health; Attending Physician at Willard Parker Hospital; Assistant Professor of Hygiene, Bellevue Medical College; and one of the foremost authorities in the country on immunity, serology, and contagious diseases, has courteously consented personally to administer to Horace Mann pupils the newly discovered Dick Test, by which we can determine which children are susceptible and which ones are immune to scarlet fever. The test is carried out in a manner very similar to the Schick Test for diphtheria susceptibility, and indicates by the appearance of a small red spot at the site of the test within 24 hours that the individual is susceptible; if immune to scarlet fever, there is no change at the site of the test. By the injection of several increasing doses of the same material that is used in the test, an immunity to scarlet fever can be produced. This is demonstrated by re-testing the children who are found susceptible and who receive the protective inoculations.

The Dick Test produces no constitutional disturbance whatever. It only shows by the local appearance of a red spot on the forearm that the individual is susceptible. The immunizing injections are followed by slight to moderate local reactions that persist for 24 to 26 hours. The reactions are less than those noted with the toxin-antitoxin in the immunization against diphtheria.

The Dick Test has been found of the greatest value in the difficulty with scarlet fever this year, which the Horace Mann School has fortunately escaped. Just as many physicians were among the first, several years ago, to have themselves and their families Schick-tested and immunized against diphtheria, so are they among the first to seize the opportunity to have themselves, their families, or both, tested and protected when necessary by the application of the Dick Test and immunizations against scarlet fever. Among such physicians are Dr. Bullowa, Dr. Haven Emerson, Dr. Thomas D. Wood, Dr. Waldie, Dr. Wynne, Dr. Hurd, Dr. Zingher, and Dr. Rowell.

We feel that Horace Mann parents will welcome this unusual and much-sought opportunity and will be glad to avail themselves of it. You may wish to discuss the matter with your family physician. If you are interested to have your child treated in this manner, please notify the office of the School Physician as soon as possible, so that definite appointments can be made.

Very truly yours,

HENRY C. PEARSON, Principal

HUGH GRANT ROWELL, School Physician

FIG. 69. Explanatory letter regarding Dick Test. Horace Mann School.

HORACE MANN SCHOOL
Teachers College
New York

May 6, 1924

My dear Madam:

We have your request for testing your child. Both the Dick and Schick tests will be given on Thursday, May 8, in Room 161, Thompson Building, beginning at nine o'clock. The following blank should be filled in and returned to the office of the School Physician before the time of the tests. Dick Tests will be read Friday, May 9 and the first inoculation (if requested) will be given then. Schick Tests will be read the following week and first inoculation given at time of reading. Both tests may be done at the same time without undue reaction.

Very truly yours,

HENRY C. PEARSON, Principal

HUGH GRANT ROWELL, M.D., School Physician

PERMISSION SLIP TO BE FILLED IN AND SIGNED BY PARENTS.

I hereby consent that _____
Child's name
_____ may receive from Dr. Abraham
Address
Zingher

(a) The Dick Test for susceptibility to scarlet fever.

(b) If found susceptible to scarlet fever, I consent that three protective injections be given for the producing of active immunization. I consent, also, to the final Dick Test to be given within six months to determine the success of the immunization.

(c) I consent that the Schick test be given at the same time (or subsequently, if preferred) for determining susceptibility to diphtheria.

(d) I consent to active immunization with toxin-antitoxin, if my child is found by the Schick Test to be susceptible to diphtheria.

_____
Parent's Signature

_____
Date

NOTE: Cross out b, c, or d if you do not wish these tests and inoculations.

FIG. 70. Permission slip for Dick and Schick Tests. Horace Mann School.

HORACE MANN SCHOOL FOR BOYS

Your son was given the inoculation against scarlet fever today, since his Dick Test showed he was susceptible.

During the next 24-48 hours certain manifestations may occur NONE OF WHICH NEED BE A CAUSE FOR ALARM.

1.- He may not feel as lively as usual.
2.- The injected arm may be painful where the injection was given.
3.- A small or large part of the arm near and below the point of inoculation may be red. This may be lessened by avoiding vigorous exercise use of the arm for the next 48 hours. If the arm is uncomfortable, apply a cold boric acid solution dressing frequently.

4.- A slight rash may appear. This is no cause for worry and is due to the material inoculated. It is only temporary.

5.- If you are at all worried you can call your family physician, or Dr. Zingher at Lexington 4100, Extension 150. After 6 p.m. Wadsworth 2303, or Dr. Rowell at Cathedral 5260. You will probably find no necessity for calling anyone.

6.- Dr. Rowell will be at the Boys School the latter part of Monday morning for consultation and will see any boys who are apprehensive who wish to report to him.

7.- As in all other protective inoculations, if the boy appears to be having a strong reaction, have him rest(preferably in bed), until he feels better. Usually be will not be in bed more than a day, if at all.

8.- The reaction is less than that from typhoid or diphtheria inoculations.

These possibilities are mentioned that you may avoid worry over characteristic parts of the reaction should they appear.

HORACE MANN SCHOOL FOR BOYS

Your son's Schick Test was

He was given his inoculation against Diphtheria. Please read suggestions given above under Dick Test.

Next inoculations one week from today.

FIG. 71. Slip given at time of first scarlet fever inoculation. Horace Mann School.

The following tables show Zingher's findings:[1]

TABLE 3. THE DICK TEST AT DIFFERENT AGE GROUPS

Age	Total tested	Dick positive	Dick negative	Percent Dick positive
0– 6 months	29	13	16	44.8
6–12 months	42	27	15	64.2
1– 2 years	123	87	36	70.7
2– 3 years	140	95	45	67.8
3– 4 years	207	123	84	59.4
4– 5 years	237	110	127	46.4
5–10 years	1,475	522	953	35.4
10–15 years	1,690	430	1,260	25.4
15–20 years	285	75	210	26.3
20 years up	342	61	281	17.9
Total	4,570	1,543	3,027	34.4

Tables 4 and 5 show the difference in susceptibility between well-to-do and average public school groups.

TABLE 4. THE DICK TEST IN TWO PRIVATE SCHOOLS (HORACE MANN SCHOOL, COLUMBIA UNIVERSITY AND RIVERDALE COUNTRY SCHOOL)

Age	Total tested	Dick positive	Dick negative	Percent Dick positive
4 years	9	9	0	100.0
5 years	16	14	2	87.5
6 years	15	12	3	80.0
7 years	25	21	4	84.0
8 years	32	28	4	87.5
9 years	19	15	4	78.9
10 years	38	37	1	97.3
11-15 years	119	97	22	81.5
16–20 years	47	35	12	74.4
Total	320	268	52	83.7

[1] Zingher, A.: The Dick Test in Normal Persons in Acute and Convalescent Cases of Scarlet Fever, J. A. M. A., Vol. 83, No. 6, pp. 432–443, Aug. 9, 1924.

TABLE 5. RESULTS WITH THE DICK TEST AT PUBLIC SCHOOL NO. 4, BRONX

Age	Non-immunes			Immunes			Total tested	
	Positive	Combined	Total	Negative	Negative-pseudo	Total	Number tested	Percent positive
5– 6	14	1	15	6	3	9	24	62.50
6– 7	18	1	19	15	3	18	37	51.35
7– 8	11	3	14	18	10	28	42	33.33
8– 9	16	8	24	24	20	44	68	35.29
9–10	6	6	12	31	17	48	60	20.00
10–15	20	26	46	175	137	312	358	12.85
Total.....	85	45	130	269	190	459	589	22.07

SCHICK TESTS FOR DIPHTHERIA SUSCEPTIBILITY OR IMMUNITY AT PUBLIC SCHOOL NO. 4

TOTAL	SCHICK POSITIVE	PERCENT SCHICK POSITIVE
1,133	248	21.6

TABLE 6. COMPARISON BETWEEN DICK TEST AND SCHICK TEST IN THE SAME PERSONS

School or institution	Reactions similar					Reactions not similar			
	Dick positive Schick positive			Dick negative Schick negative		Dick positive Schick negative		Dick negative Schick positive	
	Percent			Percent		Percent		Percent	
	Total tested	Number tested	Total tested	Number tested	Total tested	Number tested	Total tested	Number tested	Total tested
H. M. S., Columbia U...	144	107	74.3	7	4.8	15	10.4	15	10.4
Lenox Hill Hospital, nurses.....	23	11	47.8	0	0	2	8.6	10	43.4
General Hospital, Rochester, N. Y., nurses.....	23	11	47.0	0	0	2	8.6	10	43.4
Children's Hospital, Buffalo, N. Y., nurses.	20	7	35.0	5	25.0	3	15.0	5	25.0
Teachers College, Columbia Univ.....	29	10	34.4	7	24.1	4	13.7	8	27.5
New York Hospital, nurses.....	38	10	26.3	9	23.6	9	23.6	10	26.3
St. Vincent's Hospital, nurses.....	71	16	22.5	22	30.9	23	32.3	10	14.4
Public school 4, Bronx..	219	13	5.9	147	67.1	24	10.9	35	15.9
Total.....	567	185	....	197	....	82	....	103	
Percent of total tested .	...	...	32.6	...	34.7	...	14.4	...	18.1

The authors are greatly indebted to Dr. Abraham Zingher for liberal use of his material and his time in the preparations of this statement on diphtheria and scarlet fever immunization.

VACCINATION

Vaccination against smallpox is so universally understood and practised that little space need be given the subject. A few points are:

1. Vaccination may be done on the extensor surface of the upper arm or on the outer surface of the thigh, preferably the former.

2. The site should be previously cleaned with soap and water, followed by alcohol, which must dry before the vaccine is applied.

3. The material used for vaccination should be from a reliable source.

4. The operation should be done in as cleanly a manner as possible.

5. The vaccine should be allowed to dry before the site is covered.

6. Only a light covering of about six layers of gauze should be placed over the site. No shield should be used at any time.

7. The patient should be instructed in the probable course of the vaccination and either taught to dress the site in a cleanly manner or given a definite appointment for the physician to dress it. A definite appointment for determination of the "take" should be made at this time.

An excellent outfit is provided by the New York Board of Health. This consists of a numbered wooden cylinder containing:

1. Directions.

2. An ordinary sewing needle, sterilized, in a paper cylinder, one end of which is torn off to reach the needle. The point need not touch anything except the child's skin.

3. Vaccine in a glass capillary tube. The tube is broken at points marked and a small rubber bulb slipped over one end, the vaccine being ejected from the other by pressure on the bulb.

4. The above bulb.

The types and course of vaccination are as follows:

1. Incision, usually by a needle point.

2. Intradermal. This type will probably not be recognized by most Boards of Health because no scar is left and the possibility of fraudulent claims of vaccination are too great.

The course of the reaction according to Rosenau is:

Day of inoculation, puncture.

Fourth day, papule. Small, round, flat, bright red, hard, but superficial.

Fifth day, vesicle on summit of papule. The vesicle is clear and pearl-like.

Sixth day, umbilication. A deep red areola now surrounds the vesicle and grows wider. This is the "pearl on the rose-leaf" of the true Jennerian vesicle.

Eighth day, the vesicle turns yellowish and the middle is fuller. The skin feels hot, is painful, and the axillary glands are enlarged and tender.

Ninth day, the areola begins to fade and swelling subsides. Vesicle is now a pustule.

Twelfth day, dessication. The pustule has dried rapidly leaving a scab.

Eighteenth day, crust. The scab should not be removed as it forms the best bandage.

Foveated scar, first red, then white with characteristic pittings.

Protection begins on the eighth day.

Revaccinations should be done every five years. All persons exposed directly or indirectly to smallpox should be revaccinated at once unless they have been successfully vaccinated recently or have had the disease.

Revaccinations may:

1. Run a course entirely resembling the primary, in which case the immunity has run out.

2. Run a more rapid course with a shorter period of incubation and reach the pustular stage on about the sixth day "accelerated reaction."

3. Run a very short, mild, rapid course, with an incubation period of less than 24 hours—"immediate reaction" or the "reaction of immunity." The reaction is usually papular.

"No takes" occur. In secondary vaccination one must be sure that an "immediate" reaction has not been missed. Failure to "take" may be due to:

1. Not allowing the alcohol to dry before placing the vaccine on the arm, thus allowing the activity of the vaccine to be destroyed by the alcohol.

2. Not allowing the vaccine to dry before putting on a dressing. This may allow the vaccine to be rubbed off the point of inoculation.

3. Lack of success for some undetermined reason. The only immunity to smallpox which can be recognized in public health work, is that from successful vaccination reaction or that from an attack of smallpox.

In general, failure of the vaccination to "take" simply means another attempt must be made. From a public health point of view, this is the only possible course. It is not necessary to make more than two unsuccessful attempts during a school year.

The dangers of vaccination are small when compared with the dangers escaped. With careful, clean technic and proper vaccine, followed by proper care of the wound little trouble need be anticipated. It may be desirable to keep the child in bed during the most severe parts of the reaction and it is unwise to have the child indulge in strenuous physical exercise or allow loss of normal sleep during the period of inoculation.

Many states have laws which permit a child to remain unvaccinated and still go to school, if a physician will certify that vaccination would injure that child's health. It may be desirable to furnish such certificates in severe chronic skin diseases and a few other instances. Such children may be excluded in epidemics. There is usually no reason why a child should be excused from vaccination and thereby endanger not only himself, but all his schoolmates and contacts.

The recent small epidemics of smallpox in 1924 and 1925 have shown that in the next few years the vaccination laws must be strictly observed. There is too much laxity in this matter at the present time, chiefly because of the indifference of the average layman to dangers which he considers of no immediate importance.

Written certificates of successful vaccination should be provided by all pupils entering school and should be kept on file. A statement regarding vaccination should be part of the health record.

Fall River, Massachusetts, 19

TO THE BOARD OF HEALTH:

I hereby request the vaccination of

.....

residing at ..... a pupil of

..... School.

..... Parent or Guardian.

Vaccinated ..... 19 .... Inspected ..... 19 .... Result { Successful / Unsuccessful

Re-vaccinated ..... 19 .... Inspected ..... 19 .... Result { Successful / Unsuccessful

Certified by ..... Medical Inspector.

Vaccinated by ..... Medical Inspector.

..... School ..... Grade ..... Room

Fall River, Massachusetts, ... 19 ....

TO THE PARENT:

The medical inspector is unable to find mark indicating that your child

..... has been successfully vaccinated.

In order to comply with the law, (Section 15, Chapter 76, General Laws), children must be excluded from school unless they have been successfully vaccinated, except when an exemption permit has been issued, (Section 183, Chapter 111, General Laws). It is, therefore, necessary that your child be vaccinated at once.

..... Principal.

NOTE:—Children whose parents cannot afford to have the vaccination performed by a private physician may be vaccinated by the school medical inspector. If you wish the school medical inspector to vaccinate your child please make the request on the form on the back of this card and return within one week.

FIG. 72. Both sides. Fall River Mass. 3″ × 5″ slip. Notification to parents of unvaccinated child. Requested for vaccination on reverse side of slip.

CHAPTER VIII

HEALTH EXAMINATIONS

Yearly health examinations are a necessary and comparatively inexpensive means of discovering the capacity of the individual for complete development and abundance of life—to determine the extent to which the individual is free to be well to the optimum and to improve health to the individual's maximum. Resulting from the health examination are:

1. Assurance that health is normal.

2. The discovery of potential or actual defects which are anatomical or physiological in type, sometimes both.

3. The development of plans:

   (*a*) For maintaining the present state of good health, or

   (*b*) For remedying defects discovered or minimizing, as far as possible, their effect on the individual's health and efficiency.

The periodic health examination in schools is approved thoroughly, and where it is not offered or where it is poorly carried out, the chief causes are lack of funds or lack of facilities. In Health Service in City Schools (a questionnaire investigation, pub. 1922) 94.9 percent of the 323 school systems reporting, provided such examinations. 61 percent (197) gave health and physical examinations once a year. 17.3 percent (56) had examinations twice a year. 4.0 percent (13) had no physical or health examinations. Examinations more often than three times a year were evidently only individual examinations.

ITEMS INCLUDED IN HEALTH EXAMINATIONS

In the same investigation the accompanying table shows the items included in the examinations and the percentages and number of cities reporting each item.

Most of these items should be included on the record.

Items Included in Health Examination with Number and Percentage of Cities Reporting Each Item

245 Cities Reporting

Item	Number of Cities	Percentage
Eyes	219	89.3
Ears	203	82.9
Teeth	182	74.3
Throat	158	64.5
Nose	153	62.5
Skin	138	56.3
Heart	118	48.2
Lungs	115	46.9
Nutrition	98	40.0
Weight	94	38.3
Tonsils	86	35.1
Hair	80	32.7
Glands	78	31.8
Nervous System	60	34.5
Height	60	34.5
Adenoids	48	19.6
Vaccination	43	17.6
Posture	34	13.9
Communicable Diseases	25	10.2
Orthopedic Defects	25	10.2
Spine	22	9.0
Feet	21	8.6
Speech	21	8.6
Non-communicable diseases	11	4.5
Chorea	6	2.4
Digestion	5	2.0
Anemia	4	1.6

FORMS

The ideal health record for a given school system is the one which includes as many items of the above list as possible, plus important facts regarding the child's previous history and the family history which have bearing, at the same time imposing a minimum of clerical work. Where the examination must be limited it is wise to secure and record as much accurate information as possible. Accurate examination of the chest, heart, lungs, spine, and posture is most difficult unless clothing can be removed, except in most obvious cases.

Code
Physical Defects

A - Teeth
B - Tonsils
C - Adenoids
D - Glands
E - Nasal Obstruction
F - Hearing
G - Vision
H - Anaemia
I - Scoliosis
J - Nutrition
K - Chorea
L - Extremities
M - Chest
N - Discharging Nose
O - Discharging Ear
P - Heart
Q - Goitre
R - Others

FIG. 73. Cleveland. Letter code. Original white card 3″ × 5½″.

Cards are the best health records.

Large size cards (*e.g.* 8 × 5 inches) permit more detailed information. On the other hand, they require more filing space. If possible health records should not be larger than the standard filing size for other school records of individual pupils, if all records are to be filed together.

Various codes are used in recording (1) whether a defect exists; (2) what it is; and (3) whether it has been remedied. All codes are makeshifts; tend to create errors in statistics and the ideal method is to write out the information in a space on the card large enough to provide for this. However, in most cases the clinical accuracy needed in a hospital is not desired nor required, since no treatment is given and the case is referred to others with tentative diagnosis only. Where a code is used it must be simple, easily remembered, and perfectly logical in progression where different degrees of defects are recorded according to a previously determined standard. In some school systems, the use of codes conserves space on the card and the examiner's time. Otherwise they are a waste of time, since any intelligent examiner can convey any information to his recorder without giving offense to a pupil. Furthermore, pupils soon learn the code numbers for the most common diseases, so that attempts to conceal diagnoses, by using a code, are failures.

CODE FOR SCHOOL INSPECTION

1. Diphtheria.	9. Scarlet Fever.	17. Ringworm.
2. Pediculosis.	10. Measles	18. Impetigo.
3. Tonsilitis.	11. Varicella.	19. Favus.
4. Pediculosis.	12. Pertussis.	20. Molluscum Contag.
5. Acute Conjunctivitis.	13. Mumps.	21. Zero.
6. Trachoma.	14. Zero.	22. Acute Coryza.
7. Zero.	15. Scabies.	23. Eczema.
8. Pediculosis.	16. Pediculosis.	24. Otitis Media.

MILWAUKEE PUBLIC SCHOOLS

FIG. 74. Milwaukee. Number code. White card 2″ × 5″. New York City and Springfield, Mass. have other number codes.

PUBLIC SCHOOLS
YORK, PA.
Code For Physical Record

1. Malnutrition
A. Slight.
B. Marked.

2. Cervical Glands
A. Slightly Enlarged.
B. Greatly Enlarged.
C. Acutely Inflamed.

3. Nervous Defects
A. Chorea.
B. Epilepsy.
C. Mental Deficiency.

4. Cardiac Disease
A. Slight.
B. Marked.

5. Pulmonary Disease
Specify.

6. Skin Disease
Specify

7. Orthopedic Defects
Specify.

8. Defective Vision
20. Normal.
30 or More. Defective.
0. Blind.
CS. Corneal Scars.

9. Defective Hearing
20. Normal.
15 or Less. Defective.
OT. Otorrhoea.
A. Slight.
B. Profuse.
C. Offensive.

10. Defective Breathing
A. Slight Impairment.
B. Marked Impairment.
C. Mouth Breathing.

11. Tonsils
A. Slightly Enlarged.
B. Greatly Enlarged.
C. Acutely Inflamed.

12. Adenoids
A. Suspected.

13. Defective Teeth
A. Unclean.
B. Decayed.
C. Diseased Gums.

14. Defective Speech
A. Slight.
B. Marked.
Specify.

15. Specific Infectious Disease
Specify.

16. Miscellaneous Defects
Specify.

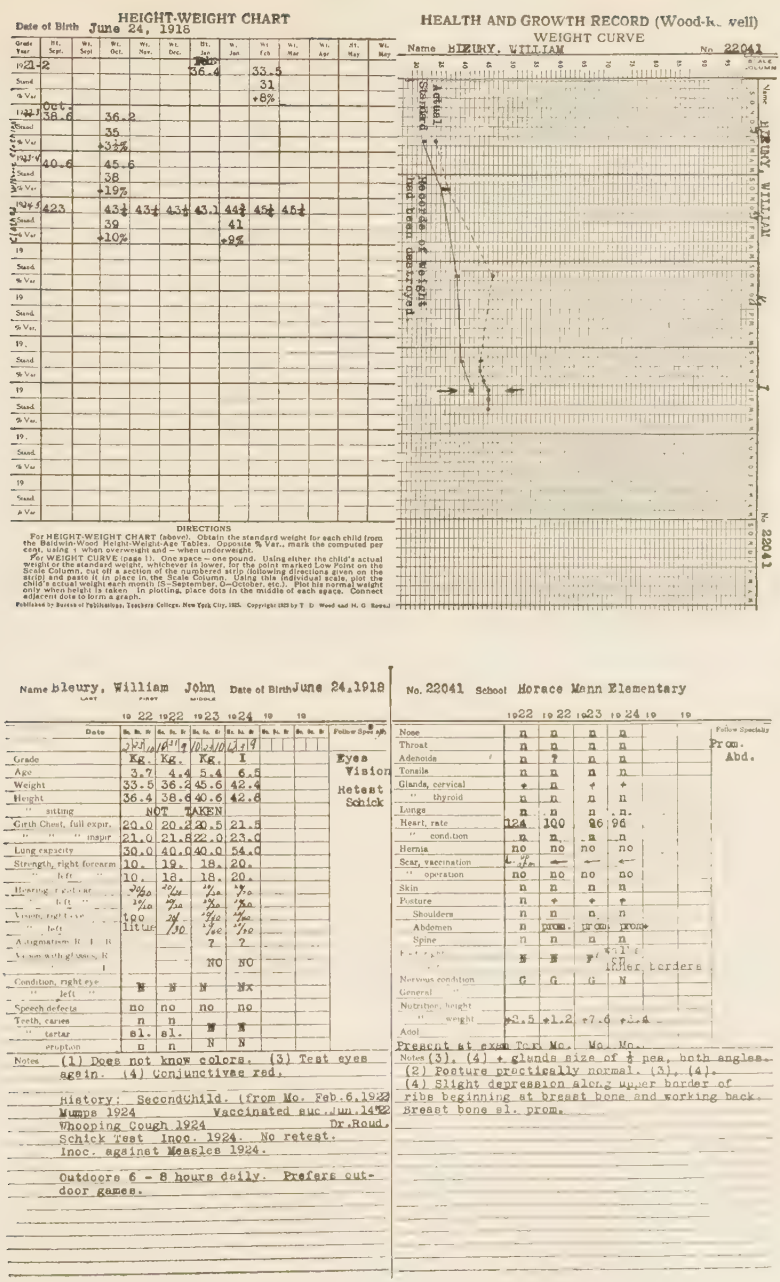
FIG. 75. York, Pa. Number and letter code. White card 4″ × 6″.

Certain blanks contain room for anthropmetric records, as in the Horace Mann Schools. These are valuable and useful statistics, when they are obtainable with the facilities available, but are less important than records of Health Examinations and of measuring height, and weighing.

BLANKS

The Wood-Rowell Health Growth Record[1] (Fig. 76) is unique, in that it contains (1) provision for recording a very thorough health examination; (2) a graphic weight record in which an individual scale is provided for each pupil by a simple, special device; (3) an individual weight and height record with norms. It is especially useful for schools which need easily kept, comprehensive records, which can be summarized at a glance. It has met a very favorable reception. A special history form may be used. This form is used in the Horace Mann School. Files $5'' \times 8''$ or $8'' \times 5.''$

[1] The Wood-Rowell Health and Growth Record is published by the Teachers College, Bureau of Publications, 525 W. 120th St., New York City.



HEIGHT-WEIGHT CHART

Date of Birth June 24, 1918

Grade Year	Ht. Sept.	Wt. Sept	Ht. Oct.	Wt. Nov.	Wt. Dec.	Ht. Jan.	Wt. Jan	Wt. Feb	Wt. Mar	Wt. Apr	Ht. May	Wt. May
1921-22						36.4		33.5				
Stand.								31				
% Var								+8%				
1922-23	Oct. 38.6		36.2									
Stand.			35									
% Var			+3%									
1923-24	40.6		45.6									
Stand.			38									
% Var			+19%									
1924-25	42½		43½	43½	43½	43.1	44½	45½	46½			
Stand.			39				41					
% Var			+10%				+9%					
19												
Stand.												
% Var												
19												
Stand.												
% Var												
19												
Stand.												
% Var												
19												
Stand.												
% Var												
19												
Stand.												
% Var												

DIRECTIONS

For HEIGHT-WEIGHT CHART (above). Obtain the standard weight for each child from the Baldwin-Wood Height-Weight-Age Tables. Opposite % Var., mark the computed per cent, using + when overweight and – when underweight.

For WEIGHT CURVE (page 1). One space – one pound. Using either the child's actual weight or the standard weight, whichever is lower, for the point marked Low Point on the Scale Column, cut off a section of the numbered strip following directions given on the Scale Column. Set the figure in the Scale Column. Using this individual scale, plot the child's actual weight each month (September, October, etc.). Plot his normal weight only when height is taken. In plotting, place dots in the middle of each space. Connect different dots to form a graph.

Published by Bureau of Publications, Teachers College, New York City, 1925. Copyright 1925 by T. D. Wood and H. G. Rowell

HEALTH AND GROWTH RECORD (Wood-Rowell)

WEIGHT CURVE

Name BLEURY, WILLIAM No. 22041

Standard

Low Point

Name Bleury, William John (LAST, FIRST, MIDDLE) Date of Birth June 24, 1918

No. 22041 School Horace Mann Elementary

Date	1922	1922	1923	1924			Follow Specialty
	2/21/22	10/11/22	10/24/23	12/19/24			
Grade	Kg.	Kg.	Kg.	I			Eyes
Age	3.7	4.4	5.4	6.5			Vision
Weight	33.5	36.2	45.6	42.4			Retest
Height	36.4	38.6	40.6	42.6			Schick
" sitting	NOT TAKEN						
Girth Chest, full expir.	20.0	20.2	20.5	21.5			
" " " inspir	21.0	21.8	22.0	23.0			
Lung capacity	30.0	40.0	40.0	54.0			
Strength, right forearm	10.	12.	18.	20.			
" left "	10.	12.	18.	20.			
Hearing, right ear	3/20	20/20	20/20	20/20			
" left "	12/20	20/20	20/20	20/20			
Vision, right eye	too little	20/30	20/20	20/20			
" left "			20/20	20/20			
Astigmatism R L			?	?			
Vision with glasses, R			NO	NO			
" L							
Condition, right eye	N	N	N	Nx			
" left "							
Speech defects	no	no	no	no			
Teeth, caries	n	n	N	N			
" tartar	sl.	sl.					
" pyorrhea	n	n	N	N			

	1922	1922	1923	1924			Follow Specialty
Nose	n	n	n	n			Prom. Abd.
Throat	n	n	n	n			
Adenoids	n	?	n	n			
Tonsils	n	n	n	n			
Glands, cervical	+	n	+	+			
" thyroid	n	n	n	n			
Lungs	n	n	n	n.			
Heart, rate	124	100	96	96			
" condition	n	n.	n	n			
Hernia	no	no	no	no			
Scar, vaccination	L. Ar.	—	—	—			
" operation	no	no	no	no			
Skin	n	n	n	n			
Posture	n	+	+	+			
Shoulders	n	n	n	n			
Abdomen	n	prom.	prom.	prom.			
Spine	n	n	n	n			
Feet	N	N	F	Sl. Fl. Inner borders			
Nervous condition	G	G	G	N			
General							
Nutrition, height							
" weight	+2.5	+1.2	+7.6	+2.4			
Acid.							

Present at exam Tert. Mo. Mo. Mo.

Notes (3). (4) + glands size of ½ pea, both angles. (2) Posture practically normal. (3). (4). (4) Slight depression along lower border of ribs beginning at breast bone and working back. Breast bone sl. prom.

Notes (1) Does not know colors. (3) Test eyes again. (4) Conjunctivae red.

History: Second Child. (from Mo. Feb. 6, 1922
Mumps 1924 Vaccinated succ. Jun. 1922
Whooping Cough 1924 Dr. Roud.
Schick Test Inoc. 1924. No retest.
Inoc. against Measles 1924.

Outdoors 6 – 8 hours daily. Prefers outdoor games.

FIG. 76. The Wood-Rowell Health and Growth Record. Illustration, by courtesy of the American School Board Journal, Milwaukee, Wis.

ST. PAUL'S SCHOOL

No. .....

HEALTH RECORD—PHYSICAL EXAMINATION

Name ..... Form ..... Age .....yr.....mo. Date .....19 . a. m. p. m.

Ht.....in. Sit. Ht. ..... in. Wt.....lb. Ideal wt. ..... lb. ..... % under—over wt.

Color..... Hgb..... % S. A..... Sq. M. Vital Cap..... cc. ..... M/Sq. M.

Skin: Texture: Norm., dry, moist, keratosis ..... Acne, face ..... back ..... Vac. Scar good, indef., abs.

Thyroid: Norm., Enl., slight, mod. Lymph Nodes: Norm., Enl., Cerv., ant., post., ang. Ax. Epit. Ing. (Describe on reverse)

Chest: Norm., Flat, Funnel, Pigeon, Flaring, Symmet Circum Exp..... in. Insp. ..... in.

Lungs: Expansion Rt. ..... Lt. Supraclavic fossae ..... Infraclavic fossae ..... Dullness ..... Abn B. S. ..... Rales .....

Remarks .....

Heart:

Size		Before Ex. Date	Rate	Syst.	Diast.	After Ex. Rate	Syst.	Diast.	After 2 min. Rate
Left Nipple	cm								
Midclavic Line	cm								
L. B. D. 5th	cm								
R. B. D. 3rd	cm								
P. M. I. ..... space	cm								

Action .....

Pulse: Rt..... Lt.	Insp. Pulm.	Insp. Apex	Exp. Pulm.	Exp. Apex
Murmurs Uprt.				
Recumbent				
After Exercise				

Abdomen: Norm., Narrow, Protub., Costal Angle ..... Tenderness..... Spasm .....

Liver..... in. Spleen ..... in. Rt. Kid. ..... Left Kid. ..... Masses .....

Genitalia: Penis Norm., Circum. Phimosis. Testes Rt..... Left..... Varicocele .....

Ing. Rings Rt..... Lt. ..... Pubic Hair .....

Hemorrhoids ..... Varicose Veins.....

Reflexes: K. J. ..... Romberg ..... Plantar ..... Abd. ..... Tremor Fing .....

Spine: Scoliosis ..... in. Post. Struct.
Kyphosis 0 1 2 3 Lordosis 0 1 2 3
Neck Forw'd..... ° Gen'l Post. A B C D
Shoulders Norm., Rnd. 1 2 3 ..... Higher than .....
Scapulae Norm. Scaphoid
Length of Legs Rt..... Lt.....

Feet: Ant. arch. Norm. Flat 1 2 3
Long. arch Norm., Flat 1 2 3
Pronation 0 1 2 3
Tender Points .....
Toes .....
Dorsal Flexion

Findings OK for Football

Eyes: Vision Rt. 20/ corr. to 20/ Astig..... Myop..... Pupils Light..... Accom..... Has Glasses.....
Vision Lt. 20/ corr. to 20/ Astig. ..... Myop. ..... Equal Reg. Strab. ..... Needs Refraction .....
Lids Norm., Red, Crusted. Exoph..... Nystag ..... Color Vision..... .....
Ears: Rt. /20 Lt. /20 Cerumen Rt..... Lt..... Drum Rt..... Lt. .....
Nose: Ext. deform..... Sept..... Spur..... Turbinates..... Obs..... Op. adv.....
Throat: Tonsils..... Op. Adv. ..... Pharynx ..... Adenoids.....

Mouth:
Gums
Care
Tongue
Muc. Memb.

RIGHT LEFT

UPPER

BUCCO-LABIAL 8 7 6 5 4 3 2 1 — 1 2 3 4 5 6 7 8 BUCCO-LABIAL
LINGUAL LINGUAL

LOWER

BUCCO-LABIAL 8 7 6 5 4 3 2 1 — 1 2 3 4 5 6 7 8 BUCCO-LABIAL
LINGUAL LINGUAL

Malocclusion
Needs Cleaning
Needs filling immed., vacation.

Urinalyses

Date	Sp. Gr.	Alb.	Sug.	Microscopic

Remarks

FIG. 77.

FIG. 77. St. Paul's School, Concord, N. H. This form is very complete. The school physician states that he is unable to use a cumulative form because he can not have the examination data which he wishes from that type of record. It is interesting to note that one of the most important private groups in public health work today is experimenting with a somewhat similar but less comprehensive form of the single examination type; in its present state, the originators of the form were unwilling to have it published (a most praiseworthy attitude). While the cumulative form has many advantages over the single form, it is also true that the cumulative type has distinct limitations. The Wood-Rowell Health and Growth Record was devised to meet as many as possible of such limitations. The quality of examination prescribed at St. Paul's, places that school in a most desirable position for effective health work. The dormitory type of private school may be either a great danger or a great health asset to its pupils. It is very evident that this fact is thoroughly recognized by the authorities at this particular school. Note dental record.

The Commonwealth of Massachusetts

DEPARTMENT OF EDUCATION

PHYSICAL RECORD

Name _____ Town (City) _____

Address _____ Parent _____ Occupation _____

Date of Birth* _____ Sex _____ Birthplace, Father (Country) _____

Place of Birth _____ Birthplace, Mother (Country) _____

| | | |

Record of Defects Requiring Treatment				Personal History		Names of Other Children in Family (first name)
Date	Defect	Treatment	Result		Date	
				Vaccination		
				Chicken Pox		
				Measles		
				Mumps		
				Whooping Cough		
				Scarlet Fever		
				Convulsions		
				Poliomyelitis		
				Tuberculosis		
				Rheumatism		
				Diphtheria		
				Schick Test		
				Toxin Antitoxin		

Notes:

HOME VISITS

(MEMORANDA OF NURSE)

Date	Reason for Visit	Information Secured at Visit	Result of Visit

FIG. 78. (*Continued.*)

PHYSICAL EXAMINATION RECORD

Name Born

History of Measles ☐ Pneumonia ☐ Diphtheria ☐
Scarlet fever ☐ Pertussis ☐ Grippe ☐

Date of last successful Vaccination

FOR TEACHERS

Teacher's records are to be limited to the column marked "Exam", where evident defects should be checked (✓)

School Year									2nd		4th		5th		7th		8th	
Date																		
Defect	Exam.	Treatment Re-Exam.	Exam.	Treatment Re-Exam.	Exam.	Treatment Re-Exam.	Exam.	Treatment Re-Exam.	Exam.	Treatment Re-Exam.	Exam.	Treatment Re-Exam.	Exam.	Treatment Re-Exam.	Exam.	Treatment Re-Exam.	Exam.	Treatment Re-Exam.
Defective Vision, with Glasses																		
" " without Glasses																		
" Hearing																		
" Teeth																		
" Nasal Breathing																		
Hypertrophied Tonsils																		
Nutrition																		
Cardiac Disease																		
Pulmonary Defect																		
Orthopedic "																		
Nervous Disease																		
Weight																		
Height																		

Remarks

Inspector or Nurse

Code: EXAMINATION	KIND OF TREATMENT	RESULT FOUND ON RE-EXAMINATION
V: Defect — Nutrition Grading	G: Glasses M: Medical P: Private Physician	O.K.: Corrected or Cured
S: Eye Strain 1: Excellent 3: Fair	D: Dentist O. Operation I: Institution	+: Improved
2: Good 4: Poor	R: Refused Treatment	—: Unimproved

Dept. of Health, City of New York, Bureau of Child Hygiene. Dept. of Education, City of New York, Division of Educational Hygiene

FIG. 79. New York City. Card 5" × 8". Pupil's scholarship record is printed on back. White card for girls and blue for boys. One copy is kept in the principal's office and one in the classroom. One card is transferred with pupil if he changes to another public school. Most health workers do not like health and education cards combined. Note code.

DEPARTMENT OF EDUCATION. **PUPIL'S RECORD.** **CITY OF NEW YORK**

Name _____ (Family / Given) Born _____ (Mo.-Da.-Yr.) Emp. Cert. No. _____

Parent _____ Special Aptitudes _____ 7B Geog. _____

Attended _____ days from 13th birthday to end of term _____

No.	Street	Fl.	No.	Street	Fl.	No.	Street	Fl.	No.	Street	Fl.	No.	Street	Fl.	No.	Street	Fl.

School	Bor.	Date Entered	Class	Present	Abs.	Late	Con.	Wk.	Not proficient in	School	Bor.	Date Entered (Mo.-Da.-Yr.)	Class	Present	Abs.	Late	Con.	Wk.	Not proficient in

FIG. 79. (*Continued.*)

INDIVIDUAL RECORD OF ANNUAL PHYSICAL INSPECTION (State of Virginia)
(This card to follow pupil from time of entrance till graduation from high school)

Full Name..... Address..... School.....
Sex..... Race..... Vaccination..... County.....
Check by ✓ after Name of Disease each Disease Pupil has had: Measles..... Whooping Cough..... Diphtheria.....
Scarlet Fever..... Mumps..... Smallpox..... Chicken Pox..... Malaria (Chills)..... Typhoid.....

CODE: O—No Defect—X-Defect; For Eyes: Record the number of the line on Eye Chart that pupil reads at twenty (20) feet. Check (✓) Defects Treated.

YEAR OF INSPECTION	19__		19__		19__		19__		19__		19__		19__		19__		19__		19__		19__	
	Condition	Treated	Condition	Treated	Condition	Treated	Condition	Treated	Condition	Treated	Condition	Treated	Condition	Treated	Condition	Treated	Condition	Treated	Condition	Treated	Condition	Treated
Grade																						
Age in years only																						
Height in inches																						
Weight																						
Underweight																						
Teeth																						
Vision—Right																						
" Left																						
Hearing—Right																						
" Left																						
Mouth Breathing																						
Posture (Good—Fair—Poor)																						

Notices to Parents
Remarks:

If Tonsils are inspected, use blank lines for record.

FIG. 80. Virginia. 5″ × 8″ white card with educational record on the back. An excellent simple record.

INDIVIDUAL GRAMMAR SCHOOL RECORD---STATE BOARD OF EDUCATION

Pupil's Name.....Birth (Date).....Sex.....Color.....School.....

Parent's or Guardian's Name.....Address.....Changed Address.....

Changed Address.....

Vaccinated? Dates and Results.....

Entering School (Date).....Leaving School (Date).....Cause for Leaving School.....

Transfers (Dates and Schools Sent to).....

Sessions																																			
Grades																																				
SUBJECTS	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.	Class Aver.	Exam. or Exempt.
Reading																																			
Spelling																																			
Writing																																			
Drawing																																			
Grammar																																			
Arithmetic																																			
Nature Study Geography																																			
Physiology																																			
Hist. Civ.																																			
Music																																			
Man. Tr.																																			
Deportment																																			
Days Present																																			
Days Absent																																			
Tardy																																			
Pro. Failed or Conditioned																																			

VALUATION.—A 90-100, excellent; B 80-90, very good; C 75-80, good; D 65-75, doubtful; E under 65, very poor.

FIG. 80. (*Continued.*)

MEDICAL INSPECTION **CLEVELAND PUBLIC SCHOOLS**

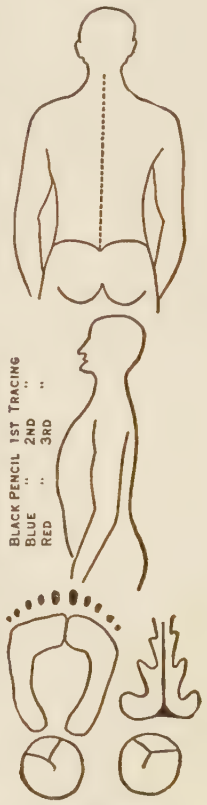
Record of _____ Date of Birth _____

Address _____ School _____ Room _____

Birthplace _____ History of Rheum. _____ Measles _____

Pertuss _____ Dipth. _____ Pneum. _____ S. F. _____ Vacc. _____

DATE											
Yrs. in School	0	1	2	3	4	5	6	7	8	9	
Grade											
Height											
Weight											
Nutrition											
Teeth											
Glands											
Vision R											
Vision L											
Squint R											
Squint L											
Headache Fatigue											
Glasses Date											
Advised Change											
Adenoids											
Diseased Tonsils											
Defectiee Hearing R											
Defectiee Hearing L											
Speech Defect											
Nervous System											
Heart											
Lungs											
Hernia											
Other Defects											
Excused from Physical Train.											
Referred to Psych. Clinic											
Referred for Corrective Gym											



Permit Granted _____ Date _____

Permit Refused _____ Date _____

"X" Denotes Defects

"O" Denotes No Defects

(OVER)

FIG. 81. Cleveland. White card 5″ × 8″. Note method of recording spine, feet, nose, and ears. A carefully prepared card with many ideas worth copying.

NOTE: STATE DIAGNOSIS OF DEFECTIVE CONDITION FOUND
STATE TREATMENT RECEIVED WHEN FOUND

DATE	

Date

Father's Occupation Supports Family?

Mother's Occupation Helps Support Family?

Name of Step or Adopted Parent

Occupation

Brothers - Sisters (Eldest First)

NAME	DATE OF BIRTH

DELINQUINCY OF CHILD IN FAMILY

CHARITABLE AID THRO SCHOOL

FIG. 81. (*Continued.*)

PHYSICAL RECORD

Child	Last Name	First Name	Native Country	Parent's or Guardian's Name	B / G	BIRTH *	Mo.	Day	Yr.	W / Y / Bl

Address..... School.....

	(Use pencil)															(Use pencil)		
Date of exam.																		
Grade																		
Height (inches)																		
Weight (lbs.)																		
Vaccinations																		
Left eye†																		
Right eye†																		
Left ear†																		
Right ear†																		
Adenoids†																		
Tonsils†																		
Teeth†																		
Scalp†																		
Skin†																		
Posture†																		
Spine†																		
Chest†																		
Heart†																		
Lungs†																		
Feet †																		
Chorea†																		
Digestion†																		
Nutrition†																		
Temperature†																		
Other defects																		
Binet age																		
Examined by																		

CODE
*Date of Birth
1. Birth Certificate
2. Baptismal Certificate
3. Passport
4. Bible Record
5. Parent's statement
6. Child's statement

†CODE
√-normal;
x-minor defect;
xx-notify parent;
xxx-immediate attention desirable;
— -not examined;
c-cured or corrected;
+-improved;
⊕-incurable;
Dates—1918-9-23.
e-excluded
r-re-admitted

STRAYER-ENGLEHARDT SCHOOL RECORD CARD SERIES—C. F. WILLIAMS & SON, INC., ALBANY, N. Y.

FIG. 82. Both sides of the Strayer-Englehardt card.[1]

[1] Reprinted by permission of the authors. Published by C. F. Williams & Son, Inc., Albany, N. Y.

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Personal history (dates, when possible)

C. Pox..... Deformities..... Diphtheria..... Grippe.....

Headache..... Malaria..... Measles..... Meningitis.....

Mumps..... Pediculosis..... Pneumonia.....

Scarlet Fever..... Small Pox..... Tonsilitis..... Toothaches.....

Tubercular..... Typhoid..... Whooping Cough.....

Family history

Alcoholism..... Tuberculosis..... Insanity.....

Epilepsy..... Home conditions.....

Record of advice to parents and results

Date	How notified*		Defect Reported	Advice †	Action ?	Result
	Card	Call				

*Check one; Code: †D-dental treatment; M-medical; O-operation; P-private physician; G-glasses; I-institution; ?I-advice followed; □-no action; ap-action promised.

Remarks

Date	Subject	Diagnosis, treatment or other memoranda

FIG. 82. (*Continued.*)

Cité de Montréal.—INSPECTION MEDICALE DES ECOLES—Division de l'hygiène de l'enfance.
City of Montreal.—SCHOOL MEDICAL INSPECTION —Division of Child Hygiene.

NOM / SURNAME — Exam. Date

PRENOMS / GIVEN NAMES — AGE — SEX M F

ECOLE / SCHOOL — CLASSE / GRADE — No / No.

PARENTS OU TUTEURS / PARENTS OR GUARDIAN — OCCUPATION

RESIDENCES — No — RUES — STREETS

1 Vision		2 Audition Hearing		Consultations par le Médecin — Doctor's Consultations								DATE	TAILLE HEIGHT	POIDS WEIGHT
				Date	Objet — Why	Traite. et Résultats Treat. and Results	Avis Notice	Date	Objet — Why	Traite. et Résultats Treat. and Results	Avis Notice			
D	G	D	G											
R	L	R	L											

Maladies cont. antérieures — Previous Cont. Diseases

A	B	C	D	E	F	G	H	I	J	K	L	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Rougeole Measles	Rubéole German Measles	Scarlatine Scarlet Fever	Diphtérie Diphtheria	Coqueluche Whooping Cough	Varicelle Chicken-pox	Variole - Small-pox	Oreillons Mumps	Méningite C.S. C.-S. Meningitis	Paralysie Infantile Inf. Paralysis	Rhumatisme Rheumatism		Maladie de peau Skin Diseases	Dents cariées Decayed Teeth	Hypertrop. Amyg. Hypertrop. Tons.	Mal. Amygdales Diseased Tonsils	Obstrue. Nas. Dif. Nasal Breath	Hypert. Gland. Enlarged Gland.	Mal d'Yeux Eye Disease	Mal d'Oreille Ear Disease	Denutrition Malnutrition	Maladie Poumon Lungs Disease	Maladie Cœur Heart Disease	Chorée Chorea	Epilepsie Epilepsy	Etat Mental Mentality	Diff. Orthoped Orthoped Diff.					

VACCINE	OUI	NON	Re-exam																											
VACCINATED	YES	NO	Date																											

* Voir code d'abréviations au verso — See abreviations code on the other side.

FIG. 83. Both sides of the Montreal card. $5\frac{3}{4}'' \times 8''$ brown card. Meets a unique bilingual situation.

ABREVIATIONS — CODE — D'ABREVIATIONS	
√ — DEFECTS	N — NURSE
+ — AMELIORE — IMPROVED	D — DENTIST
– — STATION — UNIMPRO.	H — HOSP. — CLINIC
X — MAL ANT. — PREV. DIS.	M — Dr. FAMIL.
I — INSPEC. (Medical)	G — VERRES — GLAS.

DENTS — TEMPORE — TEETH

EN HAUT — UPPER

D	5	4	3	2	1	1	2	3	4	5	G
R	5	4	3	2	1	1	2	3	4	5	L

EN BAS — LOWER

DENTS — PERMANENT — TEETH

EN HAUT — UPPER

D	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	G
R	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	L

EN BAS — LOWER

ECOLE SCHOOL	A — ON ADMISSION		Class Grade	Ch. No — Rm No.	Scolarite Scholarship	Conduite Conduct	CONSULTATIONS l'école — in school				VISITES A DOMICILE VISITS TO HOMES			
	Date	Age					Dates	Objet Why	Dates	Objet Why	Dates	Objet Why	Dates	Objet Why

REMARQUES — REMARKS

Scolarite et Conduite / Scholarship and Conduct } A { Excellente / Excellent } B { Bonne / Good } C { Passable / Fair } D { Médiocre / Poor }

Désignez les dates en mois, jours, année, comme suit : 10-15-15.
Give all dates by months, days, years as follow : 10-15-15.

FIG. 83. (*Continued.*)

Actual card 6 x 9 inches

Prepared by Herbert R. Stolz, State Director,
Physical Education, California.

CALIFORNIA PUBLIC SCHOOLS

INDIVIDUAL HEALTH AND DEVELOPMENT RECORD

Detailed instruction for keeping this record will be found on pages to of the Teachers' Manual on Health Inspection and Instruction issued by the State Department of Education.

NAME							DATE OF BIRTH			
Family Name			Given Name					Day	Month	Year
DATE										
YEAR IN SCHOOL										
AGE										
Record to nearest half year on day weight is recorded										
HEIGHT										
Without shoes; record in inches to the nearest half inch										
WEIGHT										
Without shoes or coat; record to the nearest half pound										
VARIATION FROM WEIGHT CHART FORM										
Record as plus or minus per cent., e.g. +7% or -4%										
MENTALITY										
Record as: 1 = superior; 2 = above average; 3 = average; 4 = below average; 5 = inferior										
POSTURE										
Record as: 1 = habitually good; 2 = sometimes good; 3 = never good										
VISION R:										
L:										
Test with standard chart at 20 feet; record as 20/20; 20/30; 20/40; etc.										
HEARING R:										
L:										
Test with whispered words at 20 ft.; 15 ft.; 10 ft.; 5 ft.; record as 20/20; 15/20; etc.										
Muscular VIGOR										
Record as: 1 = above average; 2 = average; 3 = below average										
DAYS ABSENT										
Record total number days absent in grade indicated above										

Record of Schools Attended

Name of School	Post-office	Inclusive Dates

FIG. 84. California card. 6″ × 9″. Unusually large. Most comprehensive, with items not on other cards.

Actual card 6 x 9 inches.

RECORD OF CONDITIONS REPORTED TO PARENTS AS
REQUIRING THE ATTENTION OF A PHYSICIAN OR OTHER EXPERT

In the appropriate square place one or a combination of the following symbols: P = parent advised to consult an expert. P changed to R = parent responded to the suggestion. F = further examination needed. F changed to E = Examination obtained. T = treatment being given. C = expert reports cured. (Red ink when correction is obtained.)

Year in school	1	2	3	4	5	6	7	8	Year in school	1	2	3	4	5	6	7	8
Defect. teeth									Defect. hearing								
Defect. vision									Enlarged glands								
Underweight 10%									Spinal curvature								
Mouth breather									Deformity								
Large tonsils									Breathlessness								
Infect. tonsils									Fatigue								
Infect. skin									Nervous instability								
(Abnormal personality)									(Speech defect)								
(Frequent illness of any kind either in school or causing absence)																	

RECORD OF CONDITIONS REPORTED BY PHYSICIAN OR OTHER EXPERT
AS DEMANDING SPECIAL INDIVIDUAL ADAPTATION BY THE SCHOOL

Place a check mark in the appropriate square

Year in School	1	2	3	4	5	6	7	8	Year in school	1	2	3	4	5	6	7	8
Defective vision									Defective hearing								
Malnutrition									Recent injury								
Recent illness									Spinal curvature								
Recent operation									Cardiac weakness								
(Crippled condition)									(Speech defects)								
(Mental inferiority)																	

RECORD OF SPECIAL INDIVIDUAL ADAPTATION MADE BY SCHOOL
Place a check mark in the appropriate square

Year in school	1	2	3	4	5	6	7	8	Year in School	1	2	3	4	5	6	7	8
Special seating									Restricted exercise								
Extra Feeding									Corrective Exercise								
Rest periods									(Ungraded Classes)								
Nutrition class									(Sight saving class)								
(Open air class									Vocational for Cripples								
(Speech correction)																	

RECORD OF COMMUNICABLE DISEASE

In the appropriate square indicate the age in years at which the child had the disease or was immunized against it

	Age		Age		Age
Measles		Scarlet fever		German measles	
Mumps		Diphtheria		Diph. toxin-antitoxin	
Whooping cough		Chickenpox		Smallpox vaccination	
(Poliomyelitis)		(Typhoid fever)		(Rheumatism (inflammatory))	
(Chorea)		(Influenza)		(Pneumonia)	
(Other diseases)					

Parenthases denote suggested changes or additions made by A.C.H.A.

FIG. 84. (*Continued.*)

FORM 92
(PLATE I-5H)

LAST NAME _____ FIRST NAME & INITIAL _____ SEX _____ COLOR _____ PARENTS' NATIVITY _____

PENNSYLVANIA DEPARTMENT OF HEALTH
SCHOOL DIVISION
PUPIL'S HEALTH RECORD

VACCINATION CERTIFICATE _____ 19__ ISSUED BY _____ M.D.

VACCINATION CICATRIX CONFIRMED _____ M.D. _____ 19__

SIGNATURE OF SCHOOL MEDICAL INSPECTOR

DATE OF INSPECTION	GRADE	AGE SEPT. 1ST	HEIGHT	WEIGHT	CHEST MEA. CONTRACTED	CHEST MEA. EXPANDED	GLASSES	VISION TESTS R	VISION TESTS L	CORNEAL DEFECT	STRABISMUS	HEARING TESTS R	HEARING TESTS L	OTORRHEA	TEETH	TONSILS	CERV. GLANDS	NASAL OBSTRUCT.	MALNUTRITION	SKIN DISEASE	SCALP	DEFORMITY	NERVOUS DIS.	TUBERCULOSIS LUNGS	TUBERCULOSIS GLANDS	TUBERCULOSIS BONES	TUBERCULOSIS JOINTS	HEART	SPEECH DEF.	MENT. SUB.	TREATMENT ADVISED	TREATMENT SECURED	RESULTS	REMARKS (MISCELLANEOUS DEFECTS)	HISTORY OF CONTAGIOUS DISEASE (GIVE DATE)
																																				CHICKEN POX
																																			MEASLES
																																			G. MEASLES
																																			MUMPS
																																			SMALLPOX
																																			SCARLET FEVER
																																			WHOOPING COUGH
																																			DIPHTHERIA

TEETH
1—Unclean
2—Decayed
3—Dis. Gums
Tonsils & Glands
1—Slight
2—Serious
3—Diseased Tl.

1—Glasses worn
Corneal Def., Strabismus & Otorrhea
1—Slight
2—Serious
Nasal Obstr.
1—Slight
2—Marked
3—Mth. Breathing
4—Sus. Adenoids
3/4—Mth. Br. & Ad.

Malnutrition
1—Slight
2—Marked
3—Ricketts

Skin Disease
1—Minor
2—Eczema
3—Contagious
Scalp
1—Nits or Lice

Deformity
1—Flat Foot
2—R'd. shoulder
3—Spinal
4—C. Palate or Hare L.
5—Other

Nervous Dis.
1—Abnormal N.
2—Chorea
3—Epilepsy
Tuberculosis
1—Suspected
2—Active
3—Quiescent

Heart
1—Functional
2—Organic
Speech Def.
1—Slight
2—Marked
3—Mute

Mental Sub.
1—Slight
2—Moderate
3—Marked
4—Extreme

Treatment Secured
1—Medical
2—Surgical
3—Dental
4—Ocular

Results
1—Excellent
2—Good
3—Unimproved
4—Worse

Vision and Hearing, 20-Normal, O-Total blindness or deafness.

X—TREATMENT ADVISED

FIG. 85. Third Class School. Districts in Pennsylvania. 5″ + 8″ yellow card. Educational record on back. Note extensive code.

DEPARTMENT OF HEALTH, ORLEANS GRADED SCHOOL
PHYSICAL EXAMINATION RECORD

Name _____ **Grade** _____

Address															
Age			Re-ex			Re-ex			Re-ex			Re-ex			
Date of Examination															
Treatment		Date	Kind			Date	Kind		Date	Kind			Date	Kind	
1 Defective Vision															
2 Defective Hearing															
3 Defective Teeth Temp															
Defective Teeth, Permanent															
4 Def. Nasal Breathing															
5 Hypertrophied Tonsils															
6 Defective Nutrition															
7 Cardiac Disease															
8 Pulmonary Disease															
9 Orthopedic Defects															
10 Nervous Diseases															
Height Date															
Weight															
Diptheria															
Scarlet Fever															
Measles															
German Measles															
Whooping Cough															
Mumps															
Chicken Pox															
Tuberculosis															
Small Pox															
Vaccination															
Remarks															

Explanation of Code: O-operation; M-medical; P-private physician: R-refused treatment; G-glasses; D-dentist: O. K. correct or cured: ‖-improved; *-unimproved; V-defect N-notice sent.

FIG. 86. Orleans, Vermont. Pale brown card 5″ × 8″. Back of card available for notes. An excellent card. From country schools where interest in health is marked.

DIVISION OF SCHOOL HYGIENE_____VERMONT

Year Month Day

HEALTH RECORD OF_____BORN_____NATIONALITY { Father / Mother / Child

PARENT OR GUARDIAN_____SEX: M. F.

ADDRESS_____

Measles Scarlet Fever Chicken Pox Whooping Cough Mumps Diphtheria Pneumonia Tonsillitis

Infantile Paralysis Headache Vaccination

SCHOOL YEAR	I		II		III		IV		V		VI		VII		VIII	
EXAMINATION AND RESULTS	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R
DATES																
1. General Appearance																
2. Teeth { Temporary																
2. Teeth { Permanent																
3. Throat																
4. Nose																
5. Eyes { R.																
5. Eyes { L.																
6. Ears { R.																
6. Ears { L.																
7. Skin																
8. Cervical Glands																
9. Mentality																
10. Other Defects																
11. Posture																
HOME VISITS																

N.—Normal D.—Defective C.—Corrected N. C.—Not Corrected P. C.—Partially Corrected R.—Refused Treatment, *Other Side.

FIG. 87. State of Vermont. 5″ × 8″ white card. A card useful for non-medical examiners or where no more extensive examination is permitted. Ample space for special notes. Both sides are shown.

Parent Notified

Care of Teeth

Tea or Coffee

Mode of Sleeping

Height

Weight

REMARKS

FIG .87. (*Continued.*)

JOLIET PUBLIC SCHOOLS, DEPARTMENT OF HEALTH

NAME ADDRESS

PHYSICAL RECORD

Sex..... Age..... Birthplace.....

Nationality of Father..... Mother.....

No. of Children in Family..... Measles.....

Diph..... Whooping Cough..... Pneu.....

Scarlet Fever..... Chickenpox..... Smallpox.....

School..... Vaccinated.....

Date of First Examination,..... 19.....

X—*Placed in square denotes symptoms.*

	1	2	3	4	5	6	7	8
1 Grade								
2 Years in School								
3 Revaccination								
4 Date of Phys. Exam.								
5 Infectious Diseases								
6 Def. Nasal Breathing								
7 Diseases of Eye								
8 Defective Vision R								
8 Defective Vision L								
9 Diseases of Ear								
10 Def. Hearing R								
10 Def. Hearing L								
11 Hypertrophied Ton'ls								
12 Defective Teeth								
13 Anemia								
14 Mentality								
15 Goitre								
16 Enlarged Glands								
17 Nervousness								
18 Pulmonary Disease								
19 Skin Diseases								
20 Ringworm								
21 Scabies								
22 Pediculosis								
23 Impetigo								
24 D formities								
25 Weight								
26 Height								
27 Nutrition								
28 General Appearance								
29 Was treatm't advised								
30 Result								

FIG. 88. Joliet, Ill. A 4″ × 6″ Manila envelope with record printed on outside.

Health Department
Springfield, Mass.
Medical Inspection of Schools

Physical record of _____ age _____

State school year in which pupil has had: Diphtheria | Measles | Mumps | Pertussis | Scarlet Fever

Date of first examination _____ 19 , in _____ School.

SCHOOL YEAR	K	1	2	3	4	5	6	7	8	9
Date of examination Mo. / Year	/	/	/	/	/	/	/	/	/	/
Grade										
Height Ft. / In.										
Weight										
Chest measure at rest										
Vaccination										
Nutrition										
Anemia										
Enlarged glands (Tubercular)										
Orthopedic defect										
Nervous disease										
Pulmonary disease										
Cardiac disease										
Teeth (G. P.)										
Enlarged Tonsils										
Adenoids										
Vision										
Hearing										
Mentality										

Y=Yes
N=No
G=Good
P=Poor
O=Operation

Use code numbers for diseases.

If tonsils or adenoids removed indicate by O.

Remarks _____

FIG. 89. Springfield, Mass. A 5″ × 8″ card kept in a Manila envelope (*cf.* Fig. 90). A brief, practical card intended for use with code.

Medical Inspection of Schools

Springfield, Mass.

_____School Room_____

PHYSICAL RECORD CARDS

The medical inspector will make a physical examination of each pupil in the public schools during the fall session of each year.

The work will require the services of an assistant, preferably the room teacher, who will fill out the blanks as directed by the examiner and in other ways assist in the work of examination.

The cards for each room are to be retained by the teacher, and when the pupils are advanced or changed to another room the pupil's card is to be given to the teacher receiving the pupil. When a change of residence requires a pupil to attend a different school this card is to be sent to the principal, who will forward it with the pupil's transfer card.

The cards are ruled to provide a record for nine years, and the information recorded should become valuable to the teacher in directing the education of the pupil.

FIG. 90. Springfield, Mass., Manila envelope with string closure. Used for physical record cards.

SMALLER CARDS

Below are smaller cards useful where personnel is very limited.

BOROUGH OF_____

PHYSICAL EXAMINATION RECORD

Name_____ Age_____

Address_____ Floor_____

Nativity of Child_____ Sex_____ Color_____ Nativity of Mother_____

School_____ Grade_____ Transferred to_____

		Defect	Treatment Instituted			Date
			Medical	Surgical	Other	Re-Ex.
1	VISION - - - -					
2	HEARING - - -					
3	TEETH - - - -					
4	NASAL BREATHING -					
5	TONSILS - - - -	1 2 3 4				
6	NUTRITION - - -	1 2 3 4				
7	CARDIAC - - - -	O F				
8	PULMONARY - - -					
9	ORTHOPEDIC - -					
10	NERVOUS - - -					

*Date*_____ _____ *M. D.*

Examining physician is requested to indicate defect by making a √ in block to right of defect found, also check under proper column the kind of treatment instituted.

DEPARTMENT OF HEALTH—BUREAU OF CHILD HYGIENE

School Consultations 1 2 3 4 5

Dispensary Visits

Date	HOME VISITS	Inspector Nurse

Case terminated by *Date*_____

Discharge, Transfer, Refusal, O. K., +, —.

Inspector_____ Nurse_____

Code: O=operation; M=medical; I=institution; D.D.C.=department dental clinic; D.M.C.=department medical clinic; P=private physician; R=refused treatment; G=glasses; D=dentist; O.K.=corrected or cured; +=improved; —=unimproved; √=defect.

FIG. 91. Both sides of office work card, New York City. Size 4″ × 6″. This card could be used in any schools where a very simple but complete record is needed.

SEATTLE PUBLIC SCHOOLS

HEALTH DEPARTMENT. CARD No. ———

NAME

SCHOOL TRANSFERS

ADDRESS DATE SCHOOL

S. F. DIPTH. W. C. C. P.

MUMPS MEAS. OTHER DIS.

School Year	1	2	3	4	5	6	7	8
1 Age								
2 Grade								
3 Height								
4 Weight								
5 Nutrition								
6 Teeth								
7 Tonsils								
8 Nose								
9 Ears								
10 Eyes								
11 Glands								
12 Ortho.								
13 Nerves								
14 Mentality								
15 Attendance								
16 Other defects								
17 Vaccination								

Nurses working card left at school

This record to be forwarded by nurse.

FIG. 92. Seattle, Nurse's working card. Manila card 4″ × 6″. Could be used as a health record (*cf.* New York office card, Fig. 91).

RECORD

Date	Disabilty	Disposal	Treatment Rec'd.	Results	Nurse

FIG. 92. (*Continued.*)

BELLINGHAM CITY SCHOOLS

PUPIL'S HEALTH CARD ..... School

Name of Pupil ..... Age..... Date of Birth..... , 192

Address .....History: Measles..... Chicken Pox..... Mumps.....

Small Pox..... Whooping Cough..... Scarlet Fever..... Biphtheria..... Infantile Paralysis.....

GRADE		DEFECTS and DISEASES																CODE
School Year	Date Exam.	Eyes	Ears	Skin or scalp	Tonsils	Adenoids	Teeth	Glands	Goiter	Nutrition	Gent. Condition	Height	Weight	Cleanliness	Notice to Parents			1—Defect +—Corrected G—Good F—Fair P—Poor
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		(Over)

FIG. 93. Bellingham, Washington. White card 4″ × 6″ with back left free for notes Very simple, covers field now handled by non-medical examiner.

PUBLIC SCHOOLS, YORK, PA.
Physical Record

Name ..... Parent (Guardian) .....

Address of Parent	Building	Date of Examination	Age	Grade	Height	Weight	Code No. of any defect

This card must be filed by teacher and transferred with pupil through succeeding grades

CODE:

1—Malnutrition.....
2—Cervical glands.....
3—Nervous defects.....
4—Cardiac disease.....
5—Pulmonary disease.....
6—Skin disease.....
7—Orthopedic defects.....
8—Defective vision.....R..... L.....
9—Defective hearing.....R..... L.....
10—Defective breathing.....
11—Tonsils.....
12—Adenoids.....
13—Defective teeth.....
14—Defective speech.....
15—Specific infectious disease.....
16—Miscellaneous defects.....

REMARKS:

For use of additional code numerals see reference card—Form 56M

FIG. 94. York, Pa. Both sides of card 4″ × 6″. Planned for use with code (*cf.* Fig. 75). The simplest card possible.

WEIGHT-RECORD

Name ....
Address ....
Date of birth ....
Grade ....
Height ....
Weight ....
Average Normal Weight ....

Date	Ht.	Wt.	Gain	Loss	Date	Ht.	Wt.	Gain	Loss
All children are weighed in the fall.									
Children who are 10% or more under average normal weight are reweighed four times during year. This card is used for them. A medical exam. is secured if possible									

PHYSICAL EXAMINATION

(Underline word describing condition.)

Inspection—bright, dull, nervous.
Skin—smooth, rough, clear, scars.
Vaccination—present, absent.
Muscles—biceps firm, flabby.
Posture—erect, fatigue
Mouth—normal, open
Tongue—normal, moist, dry, brownish coat.
Tonsils—normal, large, buried, crypts, inflammed, absent.
Teeth—good, number carious.
Approximation—good, poor.
Chest ....
Heart ....
Lungs ....
Spine—normal, rigid, curvature.
Round shoulders.
Temperature ....
REMARKS:

Signed: M.D.

FIG. 95. Springfield, Ill. Both sides of 4" × 6" card, illustrates system of underlining or otherwise indicating choice of defect. Not cumulative. No contagious disease history.

St. Louis Public Schools
School Hygiene Division

Health Record

Name_____ Sex_____ School_____
(Surname First)

Address_____ Toxin-Antitoxin Date_____ Dose_____

DATE	Height	Weight	DEFECTS	Advice	CORRECTIONS

EXCUSED FROM GYM. (DATE) CAUSE DURATION

KEY TO DEFECTS

H-A Notice to Parents.
H-P Inspector's Instructions to Nurse.
Ad. Adenoids
H. T. Enlarged or diseased Tonsils
C. S. Curvature of the Spine
C. A. Cardiac Ailment
D. V. Defective Vision
Strab Cross Eyes
N. Normal
D. C. Dental Caries
Malnut. Malnutrition
D. H. Defective Hearing
Inf. Par. Infantile Paralysis (over)
D. N. S. Deflected Nasal Septum. +

DATE	DISEASES OR INJURIES	ADVICE	RESULTS

KEY TO DISEASES AND INJURIES

Diph. Diptheria
S. F. Scarlet Fever
W. C. Whooping Cough
Meas. Measles
C. P. Chicken Pox
R. W. Ring Worm
Scab. Scabies
Imp. C. Impetigo
Ecz. Eczema
Tra. Trachoma
Typh. Typhoid
Conj. Acute Conjunctivitis
P. C. Pediculosis Capitis
Excl. Excluded
Fract. Fracture
Contd. Wd. Contused Wound
Phar. Pharyngitis
Ton. Tonsillitis

FIG. 96. St. Louis. 4″ × 6″ brown card. Uses code.

HEALTH CERTIFICATE

I, ..., a physician duly licensed to practise medicine in the State of New York, residing at ....., do hereby certify that on the ..... day of ....., 191....., I examined

a pupil residing in the { city of ..... / or in school district no. ....., town of ..... / county of .....

and certify as follows:

Age ..... Sex ..... Height ..... Weight ..... Nationality .....

Parent or guardian ..... Address .....

Lungs { Right Normal? Abnormal? / Left Normal? Abnormal? } **Heart** { Normal? / Abnormal? } **Enlarged glands** { Cervical? / Others? }

Hernia { Kind if any? Reducible? Truss worn? } **Digestion** { Good? / Poor? / Is child well nourished? }

Nose { Are there adenoids? / Nasal spurs? } **Throat** { Are tonsils enlarged and cryptic? / Has child frequent sore throat? / Is there chronic pharyngitis? }

Teeth Good? Poor? Clean? Unclean?

State any other physical defects .....

State any communicable disease or condition present .....

Date of vaccination .....

.....*Examining physician*

Date of examination ..... [*Address*]

NOTES. *a* This certificate must be presented to the principal or teacher.
b A circular of suggestions for the examination of school children in conformity to the above may be obtained from the board of education.
c Erase figures or words not needed.
d Fully explain abnormalities found.

WAIVER

(If parents of children desire the school authorities to make the examination please sign this waiver)

I, ... father / the mother / guardian of .....,

a pupil in public school no. ..... town / or city of .....

county of ....., do hereby waive my right to furnish a health certificate for said ....., and do hereby authorize the said school authorities of the said public school to make the examination of said ....., which is required under the provisions of the Education Law, but without expense to me.

.....

Dated ....., *191*

FIG. 97. New York City. Form used where family physician makes the health examination. 8″ × 10″.

CARDS FOR NOTIFICATION OF PARENTS REGARDING EXISTENCE OF PHYSICAL DEFECTS

NURSES CARD

Name _____

Address _____

School _____ Grade _____ Date _____

Disabilities _____

Remarks _____

School Consultations

Visits to Home

Visits to Dispensary

Nurse School Physician

THIS NOTICE DOES NOT EXCLUDE THIS CHILD FROM SCHOOL

Physical Defect Notice

To the Parent:

Physical examination seems to show that your child

_____ attending
Name

_____ has _____
School

and we suggest that you have this corrected. We believe that it will be better for the health of this child and will improve his school work if this defect is corrected and urge that you have it done.

Date _____ _____
School Physician

Milwaukee Health Department
Bureau of Child Hygiene

(Over

IMPORTANT

Please return this notice to the school physician or nurse within two weeks, with the following questions answered by either the family physician or parent.

1. **What has been done to correct defect?**

_____

_____

2. **If nothing has been done, when will something be done?**

_____

_____

3. **If nothing will be done, why not?**

_____

_____

Signed _____

FIG. 98. Milwaukee. Both sides of a double card 6″ × 5″ with nurses record as half and notice to parent and answer by parent as other half. An exceedingly useful form.

This Notice Does NOT Exclude the Child From School

DEPARTMENT OF HEALTH, THE CITY OF NEW YORK

.....192....

The physical examination of.....

attending P. S.....reveals an abnormal condition of.....

.....

.....

It is earnestly requested that the child be taken at once to the family physician, dispensary or dentist for treatment.

Take this folder with you to the family physician, dispensary or dentist and return it promptly to the school.

To the physician receiving this notice:

Please note the kind of treatment instituted by making a √ in proper column.

Medical	Surgical	Others

Remarks:

.....M. D.

Date.....

FIG. 99. New York City, $5\frac{1}{2}'' \times 7''$. Contains follow-up method.

Date.....192....

Name Child .....

.....

Condition .....

.....

.....

Note: .....

.....

.....

.....

.....

POCATELLO PUBLIC SCHOOLS **HEALTH SERVICE**

THIS NOTICE DOES NOT EXCLUDE CHILD FROM SCHOOL

.....192....

The parent or guardian of .....

attending .....School.

Room.....is hereby informed that a physical examination of the child gives evidence of an abnormal condition of the.....

.....

.....

Remarks: .....

.....

Please take the child to your family physician or dentist for treatment and advice.

FIG. 100. Pocatello, Idaho. Slip and stub $7\frac{1}{2}'' \times 3\frac{1}{2}''$. Contains most features approved by health workers.

DEPARTMENT OF EDUCATION

To the Parents or Guardian of_____

Public School No._____

Physical examination of your child by an examiner of the Department of Health shows that he needs treatment.

Please call at School at_____ o'clock _____ to confer with the School Nurse.

_____

Principal.

FIG. 101. White slip $3\frac{1}{4}'' \times 5''$. The parent must call at the school to learn about defect.

St. Louis Public Schools
School Hygiene Division

Result of Medical Examination

To Parent or Guardian of .....

..... School, Room ..... Date ..... 192.....

I respectfully inform you that an examination of the above named child seems to show an unsatisfactory condition of the

.....

.....

.....

.....

.....

I recommend that you take this child to your family physician or dentist for treatment and advice. Please take this card with you.

.....M. D.
Inspector of Hygiene

EXCLUSION.—In case this notice excludes the child from school till recovery, the principal will sign his name.

.....Principal

FIG. 102. St. Louis. $4\frac{1}{4}'' \times 5\frac{1}{2}''$. The "Exclusion" paragraph at the end is a possible source of confusion to parents.

CITY OF NEWTON, BOARD OF HEALTH.

SCHOOL INSPECTION

.....192.....

Name .....

School ..... Grade .....Room .....

The above named pupil should see the Medical Inspector at his next visit to the school for

.....

.....

.....

School Nurse.

FIG. 103. Newton, Mass. $3\frac{1}{2}'' \times 5\frac{1}{2}''$ paper. A useful notification form of broad application.

See pages 53 and 240, for forms for obtaining permission of parents for treatment at a medical or dental clinic.

HISTORY FORMS

ST. PAUL'S SCHOOL No.

HEALTH RECORD—MEDICAL HISTORY

Name Form Date of Birth 19

Year at St. Paul's Previous School yrs. Date 19

Home Address

Parent or Guardian

FAMILY HISTORY

Health of father Mother | Tbc.
How many brothers? Health | Diabetes
How many sisters? Health | Cancer
If any deaths, cause | Nervous or Mental

I ILLNESSES — PERSONAL HISTORY

Disease	Age	Sequel.	Disease	Age	Sequel.	Disease	Age	Sequel.
1 Measles			10 Malaria			19 Enlarged Glands		
2 Rubella			11 Rheumatic Fever			20 Rickets		
3 Pertussis			12 Chorea			21 Hay Fever		
4 Chickenpox			13 Tonsillitis			22 Asthma		
5 Mumps			14 Pneumonia			23 Eczema		
6 Scarlet Fever			15 Pleurisy			24 Urticaria		
7 Diphtheria			16 Jaundice			25 Boils		
8 Typhoid Fever			17 Influenza			26 Epidermophyt.		
9 Smallpox			18 Poliomyelitis			27 Others		

II SURGICAL	Age	Result		Age	Result		Age	Result
1 Tonsils			6 Empyema			11 Fractures		
2 Adenoids			7 Circumcision			12 Dislocations		
3 Appendectomy			8 Semilunar Cart.			13 Sprains		
4 Hernia			9 Other Op.			14 Water on Knee		
5 Ears			10 Back Injury			15 Foot Trouble		

III PROPHYLACTIC

1 Diph. Antitoxin	5 Dick Test	9 Pneumonia Serum
2 Schick Test	6 Scarlet Imm.	10 Hay Fever
3 Toxin A. T.	7 Typhoid Vacc.	11 Asthma
4 S. P. Vac.	8 Tetanus Antitoxin	12 Others

IV HEAD

1 Headache	6 Glasses Reading, Constant	11 Hearing
2 Frequency	7 Last Exam.	12 Otitis
3 Type	8 Symp. of strain	13 Teeth
4 Epistaxis	9 Blephoritis	14 Dentist, frequency
5 Pink Eye	10 Styes	15 Sore Mouth

V RESPIRATORY

1 Sore Throats	6 Snoring	11 Night Sweats
2 Colds past year	7 Cough	12 Fatiguability
3 Type	8 Expect.	13 Afternoon Fever
4 Nasal Obs.	9 Hemoptysis	14 Other Symp.
5 Mouth Br.	10 Bronchitis	15

FIG. 104. 6″ × 9½″ card, St. Paul's School, Concord, N. H. This form has just been adopted in its present revision. The school physician believes that much more emphasis is needed on mental hygiene. This history form approaches the ideal. The private school of the dormitory type must assume one hundred percent responsibility for the health of the students and for this reason such schools will require more complete records of their pupils than will public schools where the parents must share in the health responsibility.

VI CARDIAC

1 Dyspnoea
2 Precord Pain
3 Irregularity
4 Palpitation
5 "Bad heart"

VII GASTRO-INTESTINAL

1 Appetite
2 Foods not eaten
Reason dislike upset by
3 Tea Coffee
4 Nausea
5 Vomiting
6 Abdom. Pain
7 Location
8 Character
9 Bowels Reg.
10 Time of def.
11 Constip.
12 Cathartics
13 Diarrhea
14 Blood
15 Mucous
16 Pain
17 Hemorrhoids
18 Pruritus

VIII G. U.

1 Frequency D..... N.....
2 Pain
3 Burning
4 Bed wetting
5 Polyuria
6 Polydypsia
7 Alb. or sugar
8 "Kidney Trouble"

IX PSYCOLOGICAL

1 Open seclusive, cheerful depressed, uniform variable, excitable stable, irritable, anxious, cynical, critical, appreciative, egotistic, selfish, aggressive, submissive, energetic, ambitious, confident, feeling of inferiority, basis.
2 Hereditary
3 Childhood
4 Home
5 Transition to school
6 Adjustment to fellows
7 Adjustment to discipline
8 Character of schoolwork
9 Attitude toward it
10 Reaction to failure
11 Special talents or interest
12 Choice of career
13 I. Q.
14 Habits
15 Sleep

X GENERAL

1 Any trouble not asked?
2 Any exercise not allowed?
3 Remarks:

FIG. 104. (*Continued.*)

Horace Mann School

HEALTH BLANK TO BE FILLED BY PARENTS

Date .....
Name of pupil .....
Address ..... Tel. No. .....
Name of parent and guardian .....
Nationality of parents: F. ..... M. .....
Date of birth of pupil ..... Place of birth .....
No. of older brothers ..... Older sisters .....
No. of younger brothers ..... Younger sisters .....
Order of birth .....
Health of child as babe .....
Check any of the following conditions child may have suffered from and state year:

Diphtheria ..... Complications .....

Scarlet Fever ..... Complications { Ear ..... Heart ..... Kidney .....

Measles ..... Complications { Ear ..... Lungs ..... Heart .....

German Measles .....
Chicken Pox ..... Mumps ..... Whooping Cough .....
Rheumatism ..... Heart affections .....
Tonsillitis ..... Frequent colds .....
Nervous conditions ..... St. Vitus Dance .....
Accidents ..... Injuries .....

Operations { Adenoids ..... Tonsils ..... Rupture .....

Any permanent effect from these .....

Name any other illnesses child has had .....
.....
.....
.....
What weaknesses or tendencies to ill health exist at present .....
.....
Does pupil keep the mouth open or lips apart during day or night .....
.....
Hour of going to bed ..... Hour of rising .....
Is sleep quiet or restless .....
Is appetite good, medium or poor .....
Number of hours out of doors daily .....
Favorite outdoor game or exercise .....
Does child prefer outdoor games or reading for recreation .....
.....
Average time for home study .....
Studies or lessons taken out of school and time devoted to each .....
.....
Habit of bowels .....
Dates of successful vaccinations .....
Date of last attempt at vaccination .....
Remarks: .....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

FIG. 105. Horace Mann School. Both sides of History Form $5\frac{1}{2}'' \times 7\frac{1}{2}''$. Filled out by parent when child enters school. Kept up to date at school office. Contains the type of information needed by the Health Service in this school. A private school in New York City must meet many unusual problems in health.

SPECIAL FORMS USED BY THE HORACE MANN SCHOOL, NEW YORK CITY

1. Notice to parent of time of yearly health examination. Secures presence of more than 90 percent of the parents at examinations.

HORACE MANN SCHOOL
Teachers College
New York

My dear Mrs.

The health examinations of the Horace Mann School are in progress. We have reserved

for

If you wish to be present, will you please come to Room 161, Thompson Building at the appointed time.

Yours very sincerely,

FIG. 106. Appointment notice. Letter $5\frac{1}{2}'' \times 8\frac{1}{2}''$. Signed by Recorder.

2. Appointment card, mailed with above letter. Also used whenever pupil has a definite appointment at the school health office.

M.....

has an appointment

.....at.....M.

at the PHYSICAL EDUCATION BUILDING

Room

FIG. 107. Appointment card. $2\frac{1}{2}'' \times 3\frac{1}{2}''$. Similar to cards used by many physicians and dentists.

3. Parent's record card. After each health examination the parent is given this card showing certain measurements, the same child's measurements the previous year, and for comparison, the average of the school for this measurement for the given age. The Horace Mann School has its own table of anthropometric norms, made from a study of its own health records.

			Age
			Height 19 / 19
			Averages
Weight			
Girth of chest			
" " " expanded			
Lung capacity			
Strength, R. forearm			
" L. "			

FIG. 108. Anthropometric Progress Report. 3″ × 5″ card. Very popular with parents. Shows progress in growth and gives averages for reference.

PLANS FOR THE CONDUCT OF HEALTH EXAMINATIONS

HEALTH EXAMINATIONS BY PERSONS NOT PHYSICIANS

No one questions the value of the teacher in making the daily morning inspection of her room for signs of communicable diseases. That the teacher can be trained very easily to do more than this has been believed by many persons, and demonstrated by a few schools already. The fact that funds for the employment of physicians, and to a less extent the funds for the employment of nurses, are and will be greatly limited, has compelled the schools to rely on the classroom teacher to make a definite part of the health examinations.

THE DETROIT PLAN

The idea has been best organized in Detroit where it has been introduced slowly and conservatively but with considerable success. A nine page manual of instructions, containing two pages of illustrations issued in Sept., 1922, forms the working basis. The briefest sort of preliminary instruction is given, consisting of a lecture and a demonstration lasting 1 hour. Conditions are recorded as 0, 1, 2 *X*, 3*X*. The *X* cases are referred to physicians. Examination is made of the skin for anemia: of the thyroid; of the tonsils, mouth breathing, teeth, deformed palate, cervical glands, orthopedic defects, vision and hearing. In addition the teacher is told certain indications which may lead her to suspect trouble with the heart or lungs. Illustrations in the Detroit manual show various sizes of the tonsils, the location of the cervical glands, the thyroid gland, the teeth, and include a front and side view of a typical mouth breather.

It had been the practice to examine about 30 percent of the school children each year in Detroit. This left 70 percent who were unexamined in a given year, except when specially referred. In making comparisons this 70 percent

are classified as errors, as if they had been examined and mistakes made (this would be preferable to *no* examinations). The 19.1 percent error of the teacher in the new type of examination then, looks small. The teacher's judgment was checked against that of the physician and the correspondence of opinions was therefore complete in about 80 percent of the cases. Furthermore, the teacher found 41.3 percent of the children to be normal and thus eliminated enough children from further examination to permit the examining-physicians to completely cover the public elementary school system each year. There is the additional advantage that the efficiency of the teacher as such is increased through her improved knowledge of her pupils. Studies in the Horace Mann School proved pretty satisfactorily that the relation between scholarship and health is a definite one and that scholarship tends to vary with health in a majority of cases. Furthermore, the teacher (and there are a few) who doubts the value of health work, will have a very definite demonstration of its value to her and her group.

In most states, a law provides that the class room teacher shall examine the eyes and ears of all her pupils annually. Snellen eye charts and specific directions for testing eyes and ears are often distributed by such states, as in Massachusetts where both Snellen and illiterate E are furnished. The Eyesight Conservation Council of America is making available excellent test charts at a reasonable price for those who need them. Charts are also obtainable from medical or school supply houses.

A report entitled "Conserving the Sight of School Children,"[1] prepared under the direction of the senior author of this book, is now available, through coöperation between the Joint Committee on Health Problems in Education and the National Committee for the Prevention of Blindness. It represents the most accurate and up-to-date manual available for use in schools. It contains all material necessary for a thorough understanding of eye examinations in the school and full directions for testing are given.

Following is the Detroit Scale for Recording Results of Inspection provided for teachers. A very similar code for medical examiners is recommended by Palmer and his associates in the Research Division of the American Child Health Association, 370 Seventh Ave., New York City, where copies may be obtained.

Explanatory

"In inspecting school children the teacher should make no attempt to diagnose any given case or ailment nor recommend that any action be taken. She should, however, look for abnormalities and refer for examination, by the Department of Health physicians, all children having abnormalities together with her opinion as to the degree of each abnormality.

Scale for Recording Results of Inspection

In recording results of inspection enter date as 10/2/22 and findings in the left hand column under the appropriate school grade. Teacher's marking should be in *pencil* and physician's in *ink*. The inspection of the child consists of the following points:

[1] Copies may be obtained from the National Committee for the Prevention of Blindness, 130 East 22nd St., New York City.

Note. 1's are not counted as defects. It is only the *X* cases which will be reëxamined by the physicians.

Skin.

0, normal, no eruption, clear skin.

1, slight eruption of minor nature.

2*X*, moderate degree of eruption or scratch marks on back of hands and between fingers; shallow ulcerated areas more or less oozing or covered with a scab, on face, margin of hair, or on legs or other parts of body.

3*X*, marked degree of eruption of the character designated under 2*X*.

Unless absolutely sure that conditions are of no consequence, all skin eruptions should be immediately referred to the nurse.

Skin eruptions may be due to the acute infectious diseases, or to disturbances of nutrition, or to local causes of non-parasitic or parasitic origin. In early youth, which is the school age, the child is able to select his food and gets plenty of vigorous exercise in the open air and in consequence skin diseases due to constitutional disorders are rare. Localized non-parasitic eruptions may be due to wounds, irritation or burns. Local eruptions may be due to animal or vegetable parasites which are present and grow on or in the skin.

"Anemia.

0, normal color.

1, slightly pale.

2*X*, moderately pale.

3*X*, severely pale.

Notice the general appearance of the child, the inside of the eyelids, the lips, skin of the face and the finger nails. A general paleness or lack of color of eyelids, lips, skin, etc., is suggestive of anemia.

Anemia is due to an impoverishment of the blood. The number of red corpuscles may be reduced and hemoglobin of the corpuscles which carries oxygen may be lessened. This reduces the color of the skin and mucous membranes giving the appearance of paleness or whiteness. Anemia may be due to poor nourishment, lack of exercise, constipation, overwork, etc., or it may be due to actual disease. Children are frequently pale following recovery from the acute contagious diseases. It may be the result of tuberculosis, hookworm, kidney disease, cancer and disease of the blood producing system. For the best interest of the child its true cause should be determined and efforts made toward correction.

"Thyroid.

0, normal.

1, slightly enlarged, evident on close examination but hardly noticeable.

2*X*, moderately enlarged, unmistakable physiological enlargement yet not markedly disfiguring.

3*X*, greatly enlarged, very evident and disfiguring, enlargement, or constitutional symptoms of thyroid disease.

Use chart in looking for this condition. The thyroid gland is located on each side of the midline at the base of the neck or just below and on each side of the "Adam's Apple." Normally it will not be evident to the eye of the observer. Again, it may enlarge so as to give a swollen appearance to the neck. Enlarged thyroid or goitre is frequently seen on people of this section of the United States.

The thyroid gland is frequently more in evidence during puberty, and this is spoken of as a physiological enlargement to distinguish it from enlargements due to other causes. The thyroid gland normally secretes substances which are necessary to normal growth and nutrition of body and mind. Extreme nervousness may be found associated with enlarged thyroid.

Tonsils.

00, tonsils have been removed, the base of the tonsil bed is smooth, shows no tonsil and child knows that it has been removed. Tonsils which have been inadequately removed will be marked 00/2*X* or 00/3*X* as a defect. If tonsil has been removed enter approximate date of operation in next column to the right directly opposite your marking of the condition as 00—10/2/22.

0, normal—tonsil should be even with its surrounding cushion or behind it.

1, slightly or moderately enlarged tonsil but having no evidence of present or past infection. (A tonsil which is infected will be sore, red colored, and project more or less into the cavity of the mouth.)

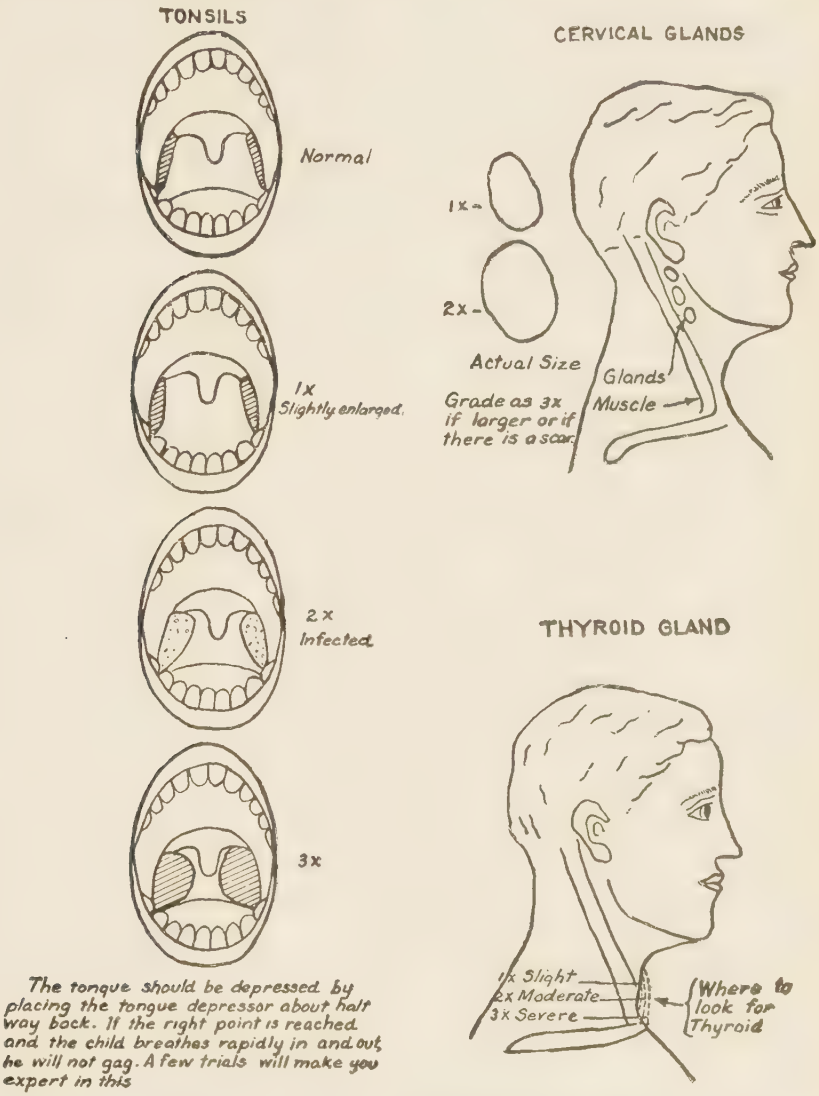

TONSILS
Normal
1X
Slightly enlarged.
2X
Infected
3X
The tongue should be depressed by placing the tongue depressor about half way back. If the right point is reached and the child breathes rapidly in and out, he will not gag. A few trials will make you expert in this
CERVICAL GLANDS
1X
2X
Actual Size
Grade as 3x if larger or if there is a scar.
Glands
Muscle
THYROID GLAND
1x Slight
2x Moderate
3x Severe
Where to look for Thyroid

FIG. 109. Tonsils, cervical glands, thyroid gland. (From Detroit Manual.)

2*X*, slightly or moderately enlarged tonsil which is infected or shows unmistakable evidence of having been infected. Into this group will go all infected tonsils and nothing but infected tonsils. If infection is present (not past) add *P*. An infected tonsil will be red and often show white or creamed colored spots. Perhaps pus will exude upon pressing the tonsil with the tongue depressor. A tonsil which has been infected will be noticeably

pitted or show cracks or crevices in which food may collect. If there is a white membrane on either tonsil the case should be *IMMEDIATELY* referred to the nurse.

3*X*, tonsil touching or almost touching its fellow on the opposite side.

Use chart in looking for this condition. Use wooden blade tongue depressor to give view of throat. For technique note demonstration which will be given in advance.

Note. Under no conditions should the same tongue depressor be used on more than one child. Tongue depressors may be obtained from the nurse. They should be discarded on to a piece of waste paper and later burned.

It remains for the physician to determine the reason for the enlarged or infected tonsil. An enlarged tonsil may or may not demand operative attention. It is wise, however, to have such tonsils viewed by a physician in order to pass on their significance. Inflamed or infected tonsils may be the cause of frequent sore throat. This condition may permit the infectious agent to gain access to the blood stream where it may attack the heart, muscles, joints, etc.

"**Mouth breathing.** Use chart in looking for this condition.

0, normal.

1, slight evidence of mouth breathing (may be temporary condition due to acute cold).

2*X*, unmistakable evidence of mouth breathing. Child sits with mouth open a good part of the time, but condition has not progressed to such an extent as to cause a permanent facial distortion.

3*X*, marked evidence of mouth breathing. Cannot breathe through nose. Mouth breathing has progressed sufficiently to cause a permanent facial distortion.

Mouth breathing is best observed by watching the pupils and making a separate list of them over a period of several days. A normal child at quiet attention should sit with the mouth closed. In marking mouth breathing, be careful that the child is not temporarily suffering from an acute cold. The question to decide is whether the child does or does not breath through the nose. If he does not, it is probably due to the obstruction of the nasal passage caused by the enlargement of the pharyngeal tonsil located behind the nose and out of sight in the upper part of the throat. These tonsils are more commonly called adenoids. Mouth breathing may be a mere habit like thumb sucking, which should be corrected. If the mouth breathing continues or has continued for a long time, one jaw or the other, or both, may become seriously deformed. This is an easy thing to observe. The child may have a vacant stare, the upper lip is short, the external nares undeveloped, which gives a narrow face. There will be a poorly developed chin. In mouth breathing air does not pass through the nasal cavities and as a result no air pressure is exerted upon the walls of the nose to promote their development.

"**Teeth.** Use chart in examining for this condition.

0, normal, teeth clean and no evident decay.

1, slight defect, teeth unclean or slight pit cavities in the temporary or milk teeth. (Any cavities in the 6th year molars, which are the first permanent teeth, will be marked 2*X*, or 3*X* if they are abscessed.)

2*X*, moderate defect, teeth with heavy green stain or badly broken down cavities in temporary teeth. Any defects in permanent teeth should be marked 2*X*.

3*X*, urgent condition, either temporary or permanent teeth which have abscesses in the gum near their root.

Of necessity this must be a more or less casual examination. There is not time to explore each tooth carefully. The marking is a general summing up of the condition of the mouth. Brushing the teeth should begin in very young children as soon as the teeth appear. It is a wise practice to visit the dentist at least once, and better twice, a year. He can see trouble brewing long before the child feels it. This attention should be given to temporary teeth even though they are coming out to make way for the permanent teeth. A neglected temporary tooth will make trouble for the future permanent tooth. Attention should be given particularly to the 6th year molars, which are permanent teeth.

The temporary teeth are all erupted before the third year. There are 20 in number. All the permanent molars erupt back of the temporary teeth. The first permanent molar erupts at the age of 6 and is called the 6th year molar. Following it are the lower front or centrals that take the place of the front or central temporary teeth. Then at 7 the upper

temporary centrals drop out and the permanent centrals take their place. At approximately 8 to 10 the temporary molars give place to the permanent bicuspids. At 10 to 21 the temporary cuspids (wrongly called the canine, eye or stomach teeth) give place to the permanent cuspids. Thus all the temporary teeth give place to the permanent centrals, laterals, cuspids and bicuspids. At 12 the 2nd permanent molar appears back of the 6th year molar.

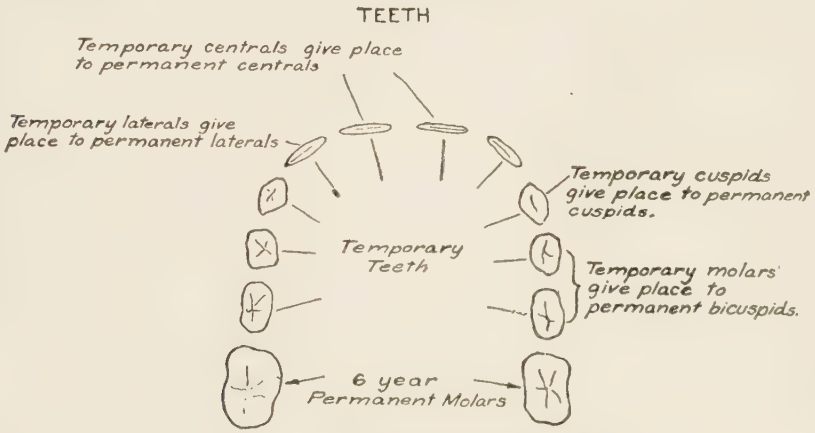

TEETH
Temporary centrals give place to permanent centrals
Temporary laterals give place to permanent laterals
Temporary cuspids give place to permanent cuspids.
Temporary Teeth
Temporary molars give place to permanent bicuspids.
6 year Permanent Molars

FIG. 110. Teeth. From Detroit Manual.

"Deformed palate.

0, normal.

1, slight—high arched palate. (This condition may be the result of mouth breathing which has been allowed to continue without attention too long.)

There is no 2*X*.

3*X*, marked—cleft palate. Nasal and mouth cavities are united through a cleft in the palate. (This is a rather rare condition and will be readily recognized if seen.)

"Cervical glands. This refers to anterior glands. Use chart in grading this condition.

00, glands have been removed, or scar from previous abscess.

0, normal, no visible evidence.

1, slight enlargement. Size of a shelled peanut, detected by feeling the region with the hand.

2*X*, moderate enlargement. Size of a hickory nut or a slight enlargement associated with a 2*X* tonsil.

3*X*, markedly enlarged. Size of a walnut. If glands discharge pus, mark *P* after grading.

There will be noticed in the neck a prominent muscle which extends from the line just behind the ear to the top of the sternum in the middle line at the lower part of the neck in front. This muscle divides the neck into two triangles—one in front of this muscle, and one behind it. There are cervical glands along the front and back margins of this muscle. The cervical glands in front are directly connected with the tonsil and are the important glands. The ones behind receive lymph from the scalp and are relatively unimportant.

The anterior glands may become inflamed and enlarged from acute sore throat, acute tonsillitis, chronic enlarged tonsils, adenoids and decayed teeth, for in all these conditions the infected areas drain into the same region of the neck.

"Orthopedic defects. Refers chiefly to deformities of the bones, joints and muscles.

0, normal.

1, slight impairment which will be evidenced by stooped shoulders, or a limp in walking.

2*X*, any impairment of a slight or moderate nature which could be improved either by treatment or operation. This would include such things as slight or serious postural

defects, spinal curvatures, high shoulders, hunchbacks, limping and post paralysis impairments.

3*X*, in this class would come the worst cases, children who are seriously handicapped in locomotion or in posture.

"Vision. Test children who wear glasses with glasses on.

oo, wearing glasses. If the child sees normally with glasses—simply mark oo. If however the vision is defective with the glasses mark CO/1, oo 2*X*, or oo 3*X*, as the case may indicate. Enter the appropriate date when the child first started to wear glasses in the first column to the right and directly opposite your marking as oo/2*X*—6/14/21.

o, normal, 20/20.

1, 20/30 but not 20/20.

2*X*, 20/40 but not 20/30.

3*X*, cannot read at 20/40.

Defects other than the inability to read the chart may be noted by either 1, 2*X*, or 3*X*, according to degree. Thus the vision may be normal but there is strabismus (cross eye) or lacrimation or other ailment. In such cases use the terms 2*X* or 3*X* even though the vision appears normal.

The first step in the vision test is to accurately measure 20 feet from the place you are going to stand while conducting the examination. Also measure off 10 feet and 15 feet and make chalk marks at all three points. The 10 and 15 foot marks may be used in the hearing test, the 20 foot mark in both the vision and hearing examinations. The child should toe the 20 foot mark and when standing ready for examination should be so situated that the maximum of light comes from the side and wherever possible from the rear, never from the front. Care should be taken to hold the vision chart as nearly as possible on a level with the child's eyes. The use of a small piece of cardboard is advisable in covering the child's eye in order to avoid pressure on the eyeball.

The vision test will be made in conjunction with the hearing test. One child will be examined at a time. With a piece of cardboard over the left eye the child standing 20 feet from the examiner will endeavor to read three 20/20 letters which will be displayed. If unable to read two out of three letters the examiner will display a 20/30 card. If still unable to read, a 20/40 card will be displayed. The cardboard will then be removed from the left eye and the hearing test of both ears given as described in the next section. Following this, time having elapsed to permit the covered eye to reaccomodate itself to the light, the right eye will be covered and the examination of the left eye proceed.

While no distinction is made as to the right or left eye, the marking on the card will show the worst condition recorded with either eye.

Note. The child always stands on the 20 foot mark while being examined for vision.

"Hearing.

o, normal.

1, slight impairment, 20/30 but not 20/20.

2*X*, evident impairment, 20/40 but not 20/30.

3*X*, marked impairment, cannot hear at 20/40.

The whispered voice test is to be used in preference to the watch test. Care should be taken to use a uniform whisper throughout the testing. Examine one child at a time, testing first one ear and then the other. The child should stand with the ear to be examined toward the examiner and put his finger in the other ear. Whisper some instruction such as "How old are you?" or "Raise your right hand" or have him repeat numbers such as 6, 27, 38, etc. In using numbers the use of fives and fours should be avoided. The child's response will indicate the acuteness of hearing. If unable to hear at 20 feet, move up to 15 and then to 10 if necessary. If the child hears at 20 feet, his hearing is o—normal. If the child hears at 15 feet but not at 20 feet his hearing is 1—20/30. If he hears at 10 feet but not at 15 he should be marked 2*X* which is 20/40. If he cannot hear at 10 feet his hearing is 3*X*, worse than 20/40.

If either ear is discharging pus, write the letter *P* after the degree of hearing, as 2*XP*, and immediately refer the child to the nurse. Such a child should be excluded from school until the possibility of diphtheria has been excluded by a culture.

After being tested for vision and hearing the child should pass by the examiner in order that the ears may be looked at for any evidence of infection.

No distinction will be made on the salmon card on the left or right ear. Record worst condition.

"Heart and lungs.

Although no routine examination for heart and lungs will be made by the teacher, she should look for certain signs which would enable her to recommend an examination. A long continued cough, constant loss of weight or continual spitting or any combination of these signs should be grounds for the teacher recommending a lung examination. Such child should be marked 2*X* or 3*X* opposite Lung, Ex. Rec.

Should child get out of breath easily, have sudden flushing of the face, or have difficulty in breathing when going up stairs or when playing games with other children, he should be marked 2*X* or 3*X* opposite Heart, Ex. Rec.[1]

In this examination and even more especially in the observation of children from day to day early signs and symptoms of the communicable diseases should be looked for and if found immediately reported to the nurse.

Some of the early symptoms to look for will be found in the pamphlet entitled Special Rules and Regulations of the Detroit Department of Health for Division of Medical Inspection of Schools.

Examinations by School Nurses and Other Trained Examiners, Not Physicians

The *school nurse* is a specialist and should not be classed as a public health nurse.[2] In the program of the future she will probably take over the minor cases requiring examination and first-aid, and certain other work now handled by the medical inspector. The junior author's 1922–23 experiment in New Bedford, Mass., of using the school nurses in making the routine health examinations and referring cases with defects to the physician proved economical and successful. The nurse has a professional background, and, with special training in school health work which may be obtained in such institutions as Teachers College, Columbia University, or through a long practical experience, can perform most of the duties formerly in the hands of the physician-inspectors, thus using the doctor's time for examinations of a more expert and extensive character. This results in the physician making fewer examinations than previously, but of much more value to the pupils.

At the Health Education Conference in Boston in June 1924 conducted by the American Child Health Association, it was stated by a committee appointed to investigate the matter that the functions of the nurse in relation to the school health examination were:

1. To assist the physician at the examination.
2. To assist in interpreting the results of the examination to child, teacher and parents in school and home through instructional conference.
3. To stimulate and secure correction of physical handicaps.

The school nurse must be considered on level between the teacher and the school physician.

[1] Instructions to Teachers on the Physical Inspection of School Children. Detroit Department of Health.

[2] This does not conflict with the proposed generalized public health nursing plan, since some modification of the school nurse's duties would probably be made wherever the "generalized" plan was adopted. In rural work, the community nurse would often function as school nurse also.

The *teacher of physical education*, through her training in Normal Diagnosis or Health Examinations, should be able to recognize certain variations from the normal. She usually does not possess as extensive a professional background for such work as the nurse but in individual cases may do so. She is capable of performing a more accurate and comprehensive examination than the teacher and her opinion on spines and feet would be more valuable than that of the average nurse. She will use many functional tests, to determine physical progress and fitness for exercise, and is usually trained to do so. At Teachers College, New York City, such training is necessary to obtain the diploma in Physical Education.

The whole question of examinations, regardless of whether the school is in the largest city or is a "little red school house," amounts to this: the health examination should be given annually, and as carefully, accurately, and completely as circumstances will permit, by the best person available.

Examinations by Physicians

The school physician is becoming more and more a medical consultant and less a badly rushed examiner. Cases which require definite medical opinions are referred to him and he will gradually examine fewer supposedly normal children in his school work, except where unusual service is provided. His time will be used in a way which will make the best use of his medical skill and training. This will mean that his records will tend to resemble full, careful, accurate hospital records more closely than previously. On the other hand he will not treat cases, unless they are of a minor or first-aid nature, or where local clinical facilities fail to provide for those children who can not afford private physicians.

Only a complete health examination from head to toes is satisfactory. If practicable, as much as possible of the child's clothing should be removed. The extent to which clothing may be removed will depend on (1) legal sanction; (2) the attitude of the public and parents in the community, (3) the conditions under which the work is done. No examination of the genitalia should be made unless at the request or with consent of the parent. The use of a woman examiner for adolescent girls is recommended.

Types of Examinations by the Physicians

The examinations by physicians vary greatly in comprehensiveness, in methods used, and in the types of children examined.

1. The most typical examination is where the school physician examines each child. This examination may consist of a complete examination of the head and its organs (hair and scalp, eyes, nose, throat, tonsils, teeth), of the skin as far as the clothing makes possible, and of the heart, lungs, and spine to as great an extent as the child's garments permit (if they can not be removed), since in many states it is illegal to remove any of the pupil's clothing without the parent's permission, usually in writing. The degree of thoroughness varies greatly even in a single part of the examination. Com-

monly the teacher, and not the physician, examines the eyes and ears functionally.

2. Where the teacher or nurse previously examines and sorts out the normal children, the physician confines his time to those who are in need of a definite medical opinion. This is called "*screening*." Thus the physician's time is used for those who need his services most.

3. In certain cities, especially Detroit, a group of several physicians examine the referred children, each physician taking a definite portion of the investigation. Thus, one may test eyes and ears, etc. This system provides the most expert service since it is thus possible to refer the child to the suitable specialist of the examining group. Children examined are referred, after normal children have been eliminated by non-medical examiners. Smaller cities approximate such expert service by demanding of the school physician special professional training, such as ability to refract eyes; special training in nose and throat work, or orthopedics.

ATTENDANCE OF PARENTS AT HEALTH EXAMINATIONS

One authority believes that the number of parents attending the school health examinations of their children depends upon whether or not the school medical officers make the parents feel that their attendance has been well worth while. This feeling soon spreads, especially in a high-class residential district. Where both parents work outside of the home; where a foreign language predominates in the home; or where there is a large family of young children, there is every reason to expect that the large majority of parents can not and will not attend the examinations, because this is impossible.

PROVISION AND EQUIPMENT IN SCHOOLS FOR HEALTH AND MEDICAL EXAMINATIONS

The ordinary daily health inspection and any examinations made by the teacher are done in the classroom. All that is required is a good light and possibly a few tongue depressors. If the eyes are tested, a Snellen eye chart is used.

Some schools make it a practice to have health examinations take place in time assigned to physical education; other schools suit the convenience of the examiner; still others devote special time to this work, thus one day in the year is allowed for teachers' health examinations of pupils in New York City, although this is by no means all the time used for the purpose.

True health examinations are much more satisfactory if made in special examining rooms. If no clothing is removed almost any well-lighted room is satisfactory. If eye and ear tests are to be made, the room must be more than 20 feet in one direction. Several chairs; a table or desk, throat sticks, scale and stadiometer, or a substitute such as a tape on the wall, and record forms make the minimum equipment. The examiner has his stethescope. Other special apparatus is needed for certain special tests, such as for examination of the ear drum, the eye muscles, etc. The room should contain some

provision for washing the hands. Commonly this room will also be used for first-aid work and should therefore contain the first-aid equipment.

The better-equipped schools will have a suite of several rooms, including a waiting room, an isolation room, possibly a separate room for eye testing (if this is done by an assistant), a dark room if careful eye examinations are made, and a dressing room, if the clothing is removed in part or entirely and examining robes substituted.

In the Horace Mann School, the flannel robe used consists of:

1. A front and a back panel, reaching to the knees of the child. These panels are of liberal width, to allow the panels to meet beneath the arms.

2. A double drawstring; which is inserted in upper margin of both panels.

Each robe is used for one child only: then washed.

Many examiners use two bath towels, one about the waist and the other around shoulders or upper chest.

The health office is best placed next to that of the school principal in order that the principal may be consulted easily; that records may be mutually available between the principal and the physician (except where the health records are kept for the teacher's convenience in the class room), and because in many schools the principal must often perform part of the work of excluding. Since he is the school's executive authority, it is usually he or his assistant who gets in touch with the parent, and in case of readmissions, he will have the attendance records. It has been found that when the medical room is placed elsewhere, it will be used less than the principal's office.

Any attempt at making the medical office more attractive, as by health posters, suitable pictures and decorations, will be appreciated by pupils. In this particular, the dental units are far ahead of the medical units, since it is common practice for the dental hygienists to bring numerous wall decorations with their equipment and set them up for the children to read as they wait, or during the examination and cleaning of the teeth. Such decorations can be purchased through funds obtained from school entertainments, or from private individuals, or from semi-public organizations, such as Parent-Teachers' Associations.

Plumbing should include wash basin with hot and cold water and fixture for liquid soap or soap powder; provision for paper towels. If dental equipment is used in the room, then special piping for the basin on the dental chair is needed. A toilet for the health room is desirable.

In rural schools, at least a small isolation room should be available and other provisions made as far as practicable.

The amount and type of equipment cannot be standardized. It must depend on the quality of health examination planned; the needs of the group of children; the amount of medical aid which the needy school child can obtain at clinics; the preferences of the health supervisor; and the amount of money available. The newer New York public schools contain most complete equipment.

Reports are usually required from doctors and nurses. Such records are statistical and may be required daily, weekly, monthly, or yearly. The daily records are probably the simplest to keep. Just what these reports

shall cover is largely a matter of what statistics are desired. Customarily such statistics are:

1. The activities of the person reporting, including the amount of time spent;

2. Reports of diseases found. Unless there is plenty of clerical assistance, such reports should be avoided or minimized. *Consider the children first; statistics (regardless of their value) later, except when future policies depend on them.*

FORMS FOR PERIODIC REPORTS

OFFICE OF

No._____ **BOARD OF EDUCATION**

ALBANY, N. Y.

School_____ Year_____

Record of Physical Defects and Defective Children

Room or Grade	Name	Date Examined	Defect	Recommendation	* Result	Remarks

* "Treated," "Glasses," "Operation," "Not Treated," "Promises," "Left School."

_____ M. D.
Medical Inspector

FIG. 111. A report of Defects and Defective Children. Card 5″ × 8″. Twenty children may be listed on one card.

ST. LOUIS PUBLIC SCHOOLS
DIVISION OF SCHOOL HYGIENE

INSPECTOR'S DAILY REPORT CARD

_____ INSPECTOR

_____ SCHOOL DATE _____

COMMUNICABLE DISEASES	Found		Excluded	
	Boys	Girls	Boys	Girls
Diphtheria				
Scarlet Fever				
Measles				
Small Pox				
Chicken Pox				
Mumps				
Tuberculosis				
Trachoma				
Conjunctivitis				
Ring Worm				
Impetigo Conta				
Scabies				
Pediculosis				
Favus				
Whooping Cough				
TOTAL				

NON-COMMUNICABLE DISEASES	Found		Excluded	
	Boys	Girls	Boys	Girls
TOTAL				

PHYSICAL DEFECTS	BOYS	GIRLS
Eye		
Ear		
Nose		
Throat		
Eye, Ear, Nose and Throat		
Eye, Ear and Throat		
Eye, Nose and Throat		
Eye, Ear and Nose		
Eye and Nose		
Eye and Throat		
Eye and Ear		
Ear, Nose and Throat		
Ear and Throat		
Ear and Nose		
Nose and Throat		
Teeth		
Teeth and Throat		
Teeth and Eye		
Teeth, Eye and Throat		
Teeth and Nose		
Teeth, Eye, Nose, Throat		
Teeth, Eye and Nose		
Teeth, Nose and Throat		
Teeth, and Speech		
Teeth, Ear and Throat		
Teeth and Tonsils		
Enlarged Tonsils		
Adenoids		
Enl. Tonsils and Adenoids		
Other Defects		
No. Found Defective		
No. Found Not Defective		
Total No. Examined		

FIG. 112. St. Louis. Blue card 4″ × 6″.

Cité de / City of } MONTREAL

Service de Santé — Health Department

Division de l'Hygiène de l'Enfance—Ecoles

Division of Child Hygiene—Schools

RAPPORT QUOTIDIEN
de l'infirmière
NURSE'S DAILY REPORT

A l'usage de l'infirmière seulement.

For Nurse's use only.

Ecoles visitées / Temps / School Visited / Time of Visits	École School							École School							École School						
	Arr.	Dep.	Autre travail / Other work				Min.	Arr.	Dep.	Autre travail / Other work				Min.	Arr.	Dep.	Autre travail / Other work				Min.
Rubriques diverses / Miscellanous headlines	Vus par M.D. / Seen by Doctor	Visit (1)	Readmi	Renvoyés-Sent home	Traitement-Treatm	Examen		Vus par M.D. / Seen by Doctor	Visit (1)	Readmi	Renvoyés-Sent home	Traitement-Treatm	Examen		Vus par M.D. / Seen by Doctor	Visit (1)	Readmi	Renvoyés-Sent home	Traitement-Treatm	Examen	
Pédiculos																					
Malpropr - Unclean																					
Rougeole - Measle																					
Rubéole - G Measle																					
Scarlat - Scarlet F.																					
Varicelle - Chick P.																					
Diphtérie - Diphtheria																					
Oreillons - Mumps																					
Coqueluche - Whoop C																					
Variole - Small Pox																					
Peau - Skin																					
Dents - Teeth																					
Syst: Lym / Gorge / Throat																					
Yeux - Eyes																					
Oreilles - Ears																					
Etat - Gen - Cond																					
Poumons - Lungs																					
Coeur - Heart																					
Syst Nerv.																					
Squelette - Bones																					
Autres - Others																					
Total																					
Total enfants vus / Total pupils seen																					
(1) Donner détail au verso / Give details on back								Date							Sig.						

FIG. 113. Montreal. Bilingual form $5\frac{1}{2}'' \times 8\frac{1}{2}''$.

SCHOOL DOCTORS' DAILY RECORD

Month of_____

DATE	Time of Arrival	Time of Dept.	No. of Physicals	No. Correct Recom.	No. Indus. Exam.	No. Permits Held Up	White: No. Physical Refer. to Nurse	Blue: No. Cases Morn. Inspect.	Yellow: No. Cases Exclud.	Blue: No. Refer. to Nurse	Rooms Inspec.	No. Cultures Taken	No. of Vaccin Done	Talks Given				SIGNATURE

Entries to be made in ink. Signature in full.

NURSES DAILY RECORD

Month of_____

DATE	Time of Arrival	Time of Dept.	No. Physicals Referred	White No. Physical Consultations	No. Blue Card Refer.	No. Blue Card Consultations	No. of Dressings	No. Refer. by Teach.	Rooms Inspec.	No. of Room	No. Pedic Cases	Yellow No. Cases Exclud.	No. Cultures Taken	No Attend. Little Mothers Club	Time Spent in Clerical Work			SIGNATURE

Entries to be made in ink. Signature in full

FIG. 114. Toronto. 6″ × 9″. Doctor's report one side, nurse's on the other. Only top and bottom of each side are shown. Sixteen spaces are allowed in each report.

SEATTLE PUBLIC SCHOOLS

MEDICAL DEPARTMENT

Week ending ..... 191..

	SCHOOLS VISITED	Hours in School	Number Pupils Inspected	High School Visited	Parental Schools Visited	Total Cases Cured	Number Cases Improved	No. Con. Excluded	Cases Under Treatment	Minor Dress	Referred to clinics for free treatment: Dental	Nose and Throat	Eye	Medical	Ortho-pedic	Psych-ological	Pediculosis Cured	Scabies Cured	Ringworm Cured	Miscellaneous cured	Cultures Taken	Number Pediculosis	Contagious Cases Reported	Home Visits	Miscellaneous visits	Hours in Visiting
MON.																										
TUES.																										
WED.																										
THURS.																										
FRI.																										
TOTAL																										

School Nurse

FIG. 115. Seattle Nurse's Weekly Report. $8\frac{1}{2}'' \times 12''$. Comprehensive but very large.

Nurses' Report

	School	Eye		Nose and Throat	Medical		Surgical		Skin		Hygiene Talks	Contagious	Pedi.		Home Visits		No. Pupils	Office
		O	N		O	N	O	N	O	N			O	N	F	S		
M																		
T																		
W																		
T																		
F																		
S																		

Remarks:

Code: N - New E - Exclusion {Visits A - Absent K - Appointment
O - Old {H - At home C - Corrected Carfares

FIG. 116. New Bedford, Mass. Nurses' Weekly Report. Actually a daily report also. Simple.

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE DEPARTMENT OF EDUCATION

MONTHLY REPORT OF SCHOOL NURSE

Name of nurse ..... City or town .....

To The board of education of the village of / city / town ..... for 19

Schools visited by name, district or number ..... Total

Number of pupils registered in each school ..... Total

Number of pupils inspected in each school ..... Total

Number of pupils found with following defects	Present month	Former months	Total to date	Number of pupils treated for following defects	Present month	Former months	Total to date
Vision, or disease of eyes				Vision, or disease of eyes			
Hearing, or disease of ears				Hearing, or disease of ears			
Teeth				Teeth			
Nasal breathing				Nasal breathing			
Hyp. or diseased tonsils				Hyp. or diseased tonsils			
Nutrition				Nutrition			
Heart				Heart			
Lungs				Lungs			
Nervous system				Nervous system			
Orthopedic, including posture				Orthopedic, including posture			
Skin or scalp				Skin or scalp			
Speech				Speech			
Mentality, 3 years or more backward				Mentality, 3 years or more backward			
Cervical, or other glands				Cervical, or other glands			
Other defects				Other defects			
Totals				Totals			
Totals for year to date				Totals for year to date			
Number of home visits				Remarks			
Number of insanitary conditions							
Number of communicable diseases							
Number of pupils excluded							
Number of notices to parents							
Totals for months							
Totals for year to date							

Date ..... Name of nurse .....

FIG. 117. State of New York, 8″ × 10″ Comprehensive. Keeps report for year, up to date.

Form 2m-2-24

Service de Santé
Health Department **Montreal** Division de l'Hygiène de l'Enfance.
Division of Child Hygiene.

Record des classes examinées par le Médecin—Record of grades examined by the Doctor.

Ecole—School..... Année scolaire—School year 192.....

Classes qui doivent être examinées—Grades to be examined.....

Classe Grade	Salle Room No.	Date de l'examen—Date of examination						Causerie Talks	Remarques—Remarks
		Complet	Special	Special	Special	Special	Pour—For Statistic		

Record des groupes de classes examinées par l'infirmière.
Record of class room examinations by the nurse.

Ecole—School..... Année—Year 192.....

Class Grade	Salle Room No.	Examen de chaque classe pour pédiculose, malpropreté, nutrition, etc. Examination of each grade for pediculosis, uncleanliness, nutrition, etc.									Remarques Remarks Causeries—Talks, etc.
		Sept.	Oct.	Nov.	Dec.	Jan.	Fe.	Mar.	Av.-Ap.	Mai	

FIG. 118. Montreal. Yearly report of doctor and of nurse. 6″ × 8″ card. Headings of both sides shown.

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE DEPARTMENT OF EDUCATION

STATE MEDICAL INSPECTOR OF SCHOOLS — SCHOOL HEALTH SERVICE

ANNUAL REPORT ON MEDICAL INSPECTION AND HEALTH SERVICE FOR RURAL FREE SCHOOLS

For School Year Ending July 31, 1921

This report must be filled out by the board of education or trustee of the district before the close of the school year, and mailed at once to the district superintendent. Every district under the direction of a district superintendent must make such report.

This annual report should include all cases treated during the summer vacation of 1920.

The medical inspector, nurse or teacher of the district should furnish the information necessary for the board of education or trustee to make this report. The district superintendent should report as soon as possible after August 1st to the State Medical Inspector of Schools, Albany, N. Y.

Town of..... County of..... School district no.....

Number of pupils registered.....
Number of pupils examined during year 1920–21 .....
Number of pupils found

Underweight — 10% or more.....	Number treated.....
With other defects of nutrition	Number treated .....
With defective teeth	Number treated.....
With defective nasal breathing.....	Number treated .....
With defective tonsils.....	Number treated.....
With defective lymph glands.....	Number treated.....
With goiter.....	Number treated.....
With defective nervous system.....	Number treated.....
With defective speech.....	Number treated .....
With defective eyes.....	Number treated .....
With defective ears.....	Number treated .....
With defective heart	Number treated.....
With defective lungs.....	Number treated .....
With orthopedic defects.....	Number treated.....
With hernia.....	Number treated.....
With defects of skin or scalp.....	Number treated .....
With other defects.....	Number treated.....
Total defects found.....	Total defects treated.....

Number of pupils reported "normal" .....
Examinations made by Dr.....
Has your school scales for weighing the children?.....
Is a hot dish prepared at noon for the children?.....

[*Dated*].....

[*Signed*].....*Trustee*

[*Address*].....

FIG. 119. New York State Rural Schools. Annual Report to District Superintendent. 8″ × 10″.

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE DEPARTMENT OF EDUCATION
MEDICAL INSPECTION BUREAU

MEDICAL INSPECTION IN SCHOOLS UNDER DISTRICT SUPERINTENDENTS
FOR YEAR ENDING JULY 31, 1924

Report to be made by district superintendent to State Medical Inspector of Schools, Albany, N. Y., before August 15th of each year.

Town of ____ *County of* ____ *Supervisory District no.* ____

NUMBER OF DISTRICT	Pupils registered	Pupils examined	10% OR MORE UNDERWEIGHT OR WITH OTHER DEFECTS OF NUTRITION		TEETH AND GUMS		NOSE		TONSILS		LYMPH GLANDS		GOITER		EYES		EARS		HEART		LUNGS	
			Number found	Number treated	Defects found	Defects treated	Defects found	Defects treated	Defects found	Defects treated	Defects found	Defects treated	Number found	Number treated	Defects found	Defects treated	Defects found	Defects treated	Defects found	Defects treated	Defects found	Defects treated
Total																						

NUMBER OF DISTRICT	HERNIA		ORTHOPEDIC		SKIN OR SCALP		NERVOUS SYSTEM		ABNORMAL BEHAVIOR		MENTAL DEFICIENCY		SPEECH DEFECTS		OTHER DEFECTS		TOTAL		PUPILS REPORTED NORMAL	No. of scales in school	Are children weighed monthly?	Is school serving a hot midday meal?	Is a school nurse employed?	Is the teacher's health good?
	Number found	Number treated	Defects found	Defects treated	Defects found	Defects treated	Defects found	Defects treated	Number found	Number treated	Number found	Number treated	Defects found	Defects treated	Number found	Number treated	Defects	Treatments						
Total																								

[*Signed*] .....

[*Date*] ..... 192..... [*Address*] .....

FIG. 120. New York State. District Report to State official. 8½″ × 11″. Top and bottom of both sides shown.

MILWAUKEE HEALTH DEPARTMENT
BUREAU OF CHILD HYGIENE

School.

Physician.

DATE	Physicals	Corrections Recommended	Hypertroph Tonsils	Adenoids	Def. Teeth	Def. Vision	Def. Hearing	Orthopedic	Pulmonary Disease	Cardiac Disease	Nervous Disease			Pediculosis	Impetigo	Scabies	Ringworm	Eczema	Other Skin Diseases	Conjunctivitis	Other Eye Diseases	Miscellaneous	3 Day Absentees		Small-pox	Diphtheria	Scarlet Fever	Measles	Mumps	Chicken-pox	Pertussis	Tonsilitis	Contageous Contact					

DATE	NAME	ADDRESS	DISEASE	EXCLUDED BY		DATE OF RETURN
				C. D.	S. D.	

FIG. 121. Milwaukee. Both sides of report form $8\frac{1}{2}'' \times 10\frac{1}{2}''$. Only headings shown. Combines report of exclusions and of physical defects.

CHAPTER IX

DENTAL CLINICS IN SCHOOL BUILDINGS

Purpose. Dental work in schools is a preventive plan with these objectives:

1. To insure every school child healthy, properly erupted teeth, if possible;

2. To avoid such handicaps as might arise from poor teeth or improper eruption of teeth;

3. To accomplish these ends by (*a*) teaching the child how to care for his teeth properly; (*b*) providing the child with regular examinations of his teeth to determine any treatment needed; (*c*) notifying parents of the existence of any defects requiring treatment; (*d*) assuring the child of treatment though not necessarily giving it to him.

THE SCHOOL DENTAL PROGRAM

The school dental program consists of (1) yearly (or more frequent) examination of the teeth of all children by the best available person; (2) sending home notices of any defects discovered, with the suggestion that treatment is needed, and later doing follow-up work in the home, if necessary; (3) cleaning the teeth when permitted by the parents; (4) giving the child such dental treatment as the clinic policy permits, referring the child to the family dentist or other dental clinics as seems advisable; (5) a teaching plan, including instruction of both child and parents by all possible means; (6) coordinating closely with the rest of the school health program. The relation of the dental service to the school health service is that of any clinic to a group of clinics. The school health system acts as a feeder for both dentist and hygienist. In addition to any examinations made by the dentist or hygienist, cases are discovered and referred to the dental clinic as a result of the regular school health examination, or as a result of special examinations by the teacher, nurse, or physician.

Where family finances are known to be limited the school dental clinic sometimes provides limited treatment upon receiving written permission from the parents.

Personnel. School dental work is done largely by the school dentist and the dental hygienist. Frequently the school physician, the school nurse, and the classroom or health teacher assume part of the duties particularly in regard to examinations and teaching how to care for the teeth.

Personnel of the dental clinic. (1) The clerk or *secretary* permits the dentist to make full use of his time for his patients by (*a*) keeping all necessary records; (*b*) keeping order in the clinic; (*c*) having the next child ready for the chair when needed; (*d*) arranging the schedule of appointments.

The work of the dental clinic includes of that of the dentists and that of the hygienists. Where hygienists are not employed, or only hygienists and no dentists are employed, the program must be arranged to give the best possible service with the personnel available.

2. The *dentist* is usually on a part time basis, although some systems employ dentists for full time service. The shortness of the school day and the necessities of his private practice do not permit the dentist to work in the schools over two or three hours in the morning and the same in the afternoon. During this time twelve to sixteen children can be cared for. Some pupils may require return appointments, since the time per child should be limited to about 15 minutes because of the nerve strain on both child and dentist. Better results come from repeated visits. In a week of five days the one chair clinic can not handle over sixty to eighty appointments. The pay of a school dentist should not be less than two dollars and fifty cents per hour. The dentist must possess a real affection and sympathy for children. Otherwise the work becomes an ordeal for both patient and dentist. The woman dentist of the Massachusetts-Halifax Health Commission secured splendid coöperation from pre-school and young school children through the use of stories and other engaging methods. During the child's first visit to her clinic she only cleaned the teeth and allowed the child to become accustomed to the room and its apparatus.

The services of the dentist include those of the hygienist if no hygienist is available. In addition the following duties and objects constitute the major portion of his work: (1) Attention to the proper eruption and to the preservation of the six year molar (first permanent molar), this tooth being the keystone of the dental arch. Parents usually fail to recognize the importance of this tooth, believe it one of the "milk set," and pay little attention to signs of decay in it. Unfortunately some dentists pay little attention to decay in the first set of teeth, although this practice is being eliminated. (2) Extraction is the second service performed and is done (*a*) when a tooth is so markedly carious that bacteria may be absorbed from the mouth through the open surface of the decaying tooth, (*b*) to permit the proper eruption of the second teeth, this being the major part of the orthodontia work done in schools. (3) Fillings are made in indicated cases, in temporary or permanent teeth and are placed a few at a time, lest the child resent the work, since children frequently consider only present discomfort and may bring home tales of suffering which will result in the parent's refusing to permit further work by the clinic on that family, at least. (4) Silver nitrate crystals are incorporated in fillings in the temporary teeth, thus arresting decay and saving these teeth till the arrival of the normal time for their loss. (5) If the policy of the clinic permits, emergency cases, such as alveolar abscesses of the acute type, are handled by immediate appointment.

3. The *dental hygienist* relieves the school dentist of the simpler parts of his duties and thus enables him to make the most advantageous use of his brief time in the schools.

"There are two distinct types of service in which the licensed dental hygienist may engage: the giving of prophylactic treatments and the teaching of oral hygiene.

"As a prophylactic operator the dental hygienist is permitted to 'remove stains and accretions from the exposed surfaces of the teeth or directly beneath the free margin of the gum under the supervision of a practitioner of dentistry.' Either in public institutions or private offices she may prepare the field of operation for the dentist and give periodic prophylactic treatments to children and adults.

"The second field of service open to the hygienist is equally important. There is an urgent need for teachers of oral hygiene in both urban and rural communities as there is a lack of competent instructors to give talks to school children, mothers' clubs, industrial employees and in private and municipal dispensaries."[1]

The duties of the hygienist are multiple. (1) She acts as a teacher (*a*) by going into the classroom and giving talks and demonstrations, sometimes conducting the tooth brush drill; (*b*) by providing the classroom teacher with material which she may use as seems best to emphasize the value and care of teeth to her pupils; (*c*) by arranging an exhibit of posters and brushes on the walls of her dental room that her patients may observe these while they are waiting for their turn or while in the chair; (*d*) by teaching the child during his stay in the chair, using stories, demonstrations, and explanations which are suitable; (*e*) by talks to groups of parents on the care and preservation of their children's teeth. Her training has covered all these phases of service, in general, emphasizing the need of proper diet with plenty of mineral constituents, but few sweets; the necessity of cleaning the teeth several times a day with one's own individual brush; the use of dental floss. (2) She makes thorough and detailed mouth examinations and records the needs of each individual. Because of her special training she should be able to make more thorough, comprehensive, and accurate examinations than other members of the school health staff who have not had her special background. In practice the hygienist (1) gains the child's confidence and interest first of all by talking to him, particularly if this is the pupil's first visit to the hygienist; (2) makes a careful examination of the teeth and records her findings regarding the needs of the child, in order that the secretary and the dentist may have a fair idea of how much work and what work the child will require to put his mouth in good condition; such a record will also permit the dentist to make an estimate of what new inroads upon the teeth have taken place since the record was made; (3) the hygienist now cleans the teeth thoroughly with an engine driven brush and suitable powder. Some hygienists use a cleaning compound as well. The efficiency of the cleaning is sometimes tested with a solution of weak iodine or IKI (Lugol's solution) which shows uncleaned areas in marked contrast to clean ones. Tartar is removed with suitable instruments. The spaces between the teeth are cleaned with dental floss. (4) Any existing small cavities or fissures in erupting molars are touched with silver nitrate. (5) The child is shown the nice clean teeth in a mirror. Inquiry is made if the pupil has his own individual toothbrush and some tooth paste. If not, an effort is made to procure them for him.

Dr. Fones of Bridgeport, Conn., is credited with the inauguration of this plan. Special institutions for training of dental hygienists are conducted at Columbia University, New York City; Forsyth Dental Infirmary, Boston, Mass.; Rochester Dental Infirmary, Rochester, N. Y.; the University of

[1] Columbia University Bulletin of Information, Mar. 21, 1925.

Maine; the University of California, and Colorado College. Dental hygienists are licensed in various states after a training course of at least one year, consisting of dental and medical subjects combined with practical work. A dental hygienist cares for not over twenty children a day, this being considered a good day's work. The pay is approximately the same as that of a school nurse and, as in the case of school nurses, the summer and other holidays are allowed.

The following courses are required at Columbia University for training as a dental hygienist: Anatomy and Physiology; Dental Anatomy; Dental Histology; Oral Hygiene and Prophylaxis; Child and School Hygiene; Elementary Chemistry; Dentophysics; Oral Surgery Assisting; Bacteriology and Sterilization; Fundamentals of Pedagogy; Nutrition and Dietetics; Comparative Dental Anatomy; Dentochemistry; Oral Pathology; Pharmacology; Radiology; Occlusion and Malocclusion; Current Dental Literature; Nursing Ethics. Also the following practical work: Tooth Morphology; Operative Technic; Clinical Practice; Teaching Mouth Care; Hospital Service.

Number and Per Cent. of Carious Cavities in Molars and Bicuspids Distributed by Surface[1]

	First Molars		Second Molars		First Biscuspids		Second Biscuspids	
	Number of Cavities	Per Cent.	Number of Cavities	Per Cent.	Number of Cavities	Per Cent.	Number of Cavities	Per Cent.
Total Cavities....	28,325	100.0	17,586	100.0	4,151	100.0	6,533	100.0
Lingual Surface...	790	2.8	384	2.2	60	1.4	112	1.7
Buccal Surface....	1,323	4.7	944	5.4	78	2.0	131	2.0
Mesial Surface....	4,799	17.0	906	5.2	728	17.5	1,323	20.3
Distal Surface....	4,319	15.2	959	5.4	1,097	26.4	1,417	21.7
Occlusal Surface...	17,094	60.3	14,393	81.8	2,188	52.7	3,550	54.3

The number of occlusal carious cavities of first molars is more than all the carious cavities in the other four surfaces combined. This is also true of the first and second bicuspids. Of the second molars, the occlusal carious cavities are more than four times the number of all carious cavities in all other surfaces combined.

[1] Hyatt, T.: Occlusal Tissues. Read before the American Academy of Dental Science, Boston Mass., May 5, 1924.

In terms of preventive dentistry the following results occur: (1) Cavities are prevented or are discovered and filled at the earliest possible moment. The above table from Hyatt shows where cavities occur. (2) The second or permanent teeth enter the mouth by erupting properly with a resulting normal broad palatal arch and symmetrical growth of the face. In this manner the incidence of adenoid facies and mouth breathing is lowered, particularly if a nose and throat specialist is available, to remove adenoids if necessary. (3) Pyorrhea is discovered in its early stages and active methods for its eradication are begun at once. Thomas was once discussing a very successful method for handling these cases, when he was informed by certain of his audience that they did not believe some of his cases had the disease. Thereupon he stressed the fact that beginning of bleeding of the gums

represents a danger signal and makes advisable the onset of treatment at once, instead of waiting for more symptoms.

The scope of the school dental service varies. A similar service should be available for the pre-school child and this would enable the limited school clinic to reach more pupils. It is essential that (1) someone who is best qualified should examine the teeth of every school child at least once a year and (2) that parents should be notified of any existing defects and immediate remedy urged. Cleaning is highly desirable and advantageous. It should be done only when the parent gives written consent. Treatment should be confined to those who can not employ their own dentists, if offered at all. The needs and dental facilities of the community will determine the advisability of offering any treatment program. Because of the time required and the pressing needs of a large group of pupils and the small number of school dentists, no orthodontia methods can be used, except extractions.

The service is often confined to the lower grades, frequently to the first four, where sometimes these grades are covered twice a year. The objection to confining the work to any one part of the elementary school, usually the lower grades, is that an apparent hardship is worked upon the older children whose needs are as great and whose advance in school has lost them a needed service. The work should also be provided for the older children because it is usually found that they have appreciated what is being done and have brought other members of their family to a private dentist (as well as coming themselves for examination and treatment) as soon as their finances possibly permitted it.

Appointments are made to serve the most needy first. Quite justly, children suffering from both malnutrition and carious teeth are given an early opportunity to remove that part of the handicap which is due to the teeth.

EQUIPMENT

The equipment depends on the scope of the work. Whether portions of it, such as the chair, instrument cases, and sterilizer shall be of the stationary or portable type will depend on whether it is kept in one school or room, or used in several schools.

A permanent chair is probably the better. A small chair intended for young children may be purchased, and has proved satisfactory in the Massachusetts-Halifax Health Commission, Cleveland and elsewhere. Usually the adult chair may be adjusted sufficiently to prove satisfactory.

For *travelling clinics* there is the portable chair, with frame of wood and steel, and canvas seat and back. This chair may be packed in a small box for transportation, the box being used as a stand for the chair when set up.

Other equipment such as engine, cabinets, sterilizer, syringes and other instruments must be suited to the budget available. Where possible the preferences of the dentist and hygienist should be considered favorably.

FORMS

The following are examples of blanks used for the notification of parents when dental defects are discovered.

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE DEPARTMENT OF EDUCATION
BUREAU OF MEDICAL INSPECTION

NOTIFICATION OF PARENT OR GUARDIAN

....
Parent or guardian *Address*

A recent physical inspection of your { son / daughter / ward[1] } ..... attending ..... school, indicates an abnormal condition of { his[1] / her }

.....

Kindly take { him[1] / her } to your family physician or dentist, who will advise you as to treatment and where it can be obtained.

Your prompt and cordial cooperation is urged that this pupil, in whose welfare we are mutually interested, may be given every possible advantage of good health in { his[1] / her } school work.

If for any reason you are unable to do this, please advise either the principal, teacher or nurse, who may be able to assist you.

It would be well to take this notice with you.

THIS NOTICE DOES NOT EXCLUDE THE PUPIL FROM SCHOOL

Issued by order of board of education (trustee of district)[1]

.....
Principal Teacher Nurse[1]

.....
Place and date

[1] *Cancel words not applying.*

[SEE OTHER SIDE]

Parents or guardians are requested to report to the school authorities on the attention given to defects, stating results obtained by treatment.

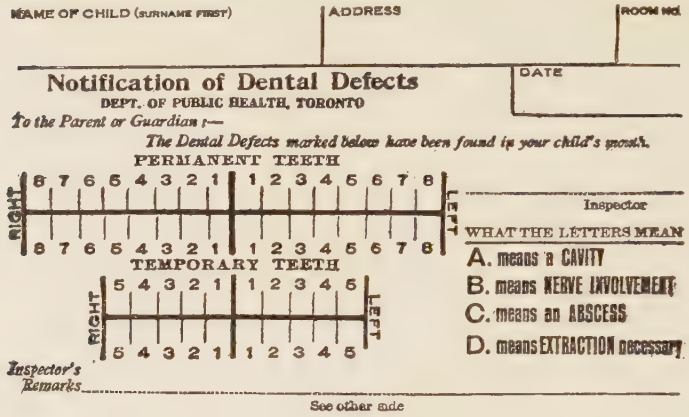
REPORT

[*Signed*] .....
Parent or guardian

[*Dated*] .....19.....

[OVER]

FIG. 122. Both sides of New York State Form. $3\frac{1}{2}'' \times 5''$ white card. Has space for parent's report. This is the most practical type of report to use in most school systems. The family dentist or clinic then makes diagnosis in detail.


NAME OF CHILD (SURNAME FIRST) ADDRESS ROOM No.

DATE

Notification of Dental Defects

DEPT. OF PUBLIC HEALTH, TORONTO

To the Parent or Guardian :—

The Dental Defects marked below have been found in your child's mouth.

PERMANENT TEETH

RIGHT 8 7 6 5 4 3 2 1 | 1 2 3 4 5 6 7 8 LEFT

8 7 6 5 4 3 2 1 | 1 2 3 4 5 6 7 8

TEMPORARY TEETH

RIGHT 5 4 3 2 1 | 1 2 3 4 5 LEFT

5 4 3 2 1 | 1 2 3 4 5

Inspector

WHAT THE LETTERS MEAN

A. means a CAVITY

B. means NERVE INVOLVEMENT

C. means an ABSCESS

D. means EXTRACTION necessary

Inspector's Remarks

See other side

YOU ARE URGENTLY ADVISED TO TAKE YOUR CHILD TO YOUR FAMILY DENTIST AT ONCE. PRESENT THIS CARD AND HAVE HIM SIGN BELOW WHEN TREATMENT IS COMPLETED. THEN RETURN THIS CARD TO THE NURSE.

I hereby Certify to the completion of all dental work required

*Signature of Family Dentist*_____

If it is imposible for you to have this dental work done at present, please give reason on this card and return it to the nurse.

*Reason :*_____

_____

*Signature of Parent or Guardian*_____

FIG. 123. Both sides of Toronto Form. Blue card. 3″ × 5″. Gives very specific information to parent. Follow-up form on back.

NURSES CARD

Name

Address

School Grade Date

Abscesses	1st Permanent Molars Decayed	
Necessary Extractions	1st Permanent Molars Erupted	Missing
Tooth Brush Used?	Other Teeth Decayed	Perm: Decid
Cond. of Mast. Surface	Condition of Gums	

Prophylactic Treatment									
Visits to Home									
Visits to Clinic									

Special Class

Remarks:

Nurse Dental Hygienist

THIS NOTICE DOES NOT EXCLUDE THIS CHILD FROM SCHOOL

Dental Defect Notice

To the Parent of: _____
Name

Your child's teeth need to be / have been cleaned. Upon examination of the mouth, we find the following conditions present:

Teeth abscessing and discharging pus _____

First permanent or 6th year molars decayed _____

Fillings or extractions necessary _____

Remarks: _____

It is very necessary that these conditions should be corrected for the sake of your child's health.

Date _____

Dental Supervisor

Milwaukee Health Department
Mouth Hygiene

(Read Other Side)

IMPORTANT

Please return this notice to the school within two weeks, with the following questions answered by either the family dentist or parent.

1. What has been done to improve the mouth condition?

2. If nothing has been done, when will something be done?

3. If nothing will be done, why not?

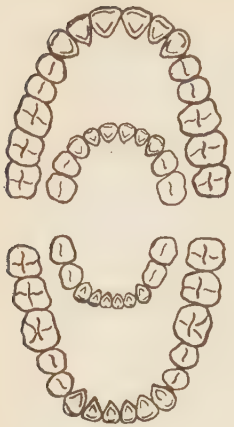
Signed _____

If unable to pay for the services of a private dentist, we can advise you further by consulting with us.

WARNING: Abscesses discharging pus are very dangerous, as the poison is taken into the system, endangering your child's health.

The first permanent or 6th year molars are the most important teeth, and, should be preserved to avoid many future complications and troubles.

FIG. 124. Both sides of Milwaukee Form, 6″ × 5″ white card. Consists of nurses record, and notice to parent with follow-up report on back.



INNER CIRCLE SHOWS BABY TEETH
OUTER CIRCLE PERMANENT TEETH

Form 1-S

OAKLAND PUBLIC SCHOOLS

HEALTH DEVELOPMENT DEPARTMENT

DENTAL PERMIT

Date.....

Name.....

The teeth marked need .. ..

If you desire the service of the school dentist for this purpose kindly sign and return.

Parent's Signature.....

Date.....

Operation performed on.....
Date

Dentist's Signature.....

FIG. 125. Permission Form $5\frac{1}{2}'' \times 8\frac{1}{2}''$. See also page 53 for medical forms which could be adapted to this purpose.

CARD OF ADMISSION

FOR SERVICE AT THE DENTAL CLINIC
MARQUETTE UNIVERSITY
140-16 STREET
(2ND FLOOR)
PHONE GRAND 544

Name _____

Address _____

Age_____ **Nationality**_____

Name of Parent or Guardian

_____

Weekly Income_____

Number of Persons in Family_____

_____

The Undersigned who is a field nurse of the Milwaukee Health Department is personally acquainted with the person whose name appears above and considers him (or her) as worthy of service at your institution.

_____

Date_____

The work will cost about_____

Remarks _____ **(Over)** _____

Approved_____**D. D. S**
PROF OF CLINICAL DENTISTRY.
Marquette University
School of Dentistry.

FIG. 126. $2\frac{1}{2}'' \times 5''$ white card. A social service type of form.

DENTAL CLINIC APPOINTMENT CARD

NORTH SIDE 2920 NORTH AVE.	CENTRAL CITY HALL	SOUTH SIDE 6TH AVE., COR. MITCHELL

NAME_____

DAY_____ HOUR_____ M.

DATE_____ 192____

HEALTH DEPARTMENT ASSISTANT

FIG. 127. Appointment Form, Milwaukee $2'' \times 3\frac{1}{2}''$, white card.

MILWAUKEE HEALTH DEPARTMENT

Division of School Hygiene

INSTRUCTIONS TO PARENTS

Care of the Mouth and Teeth.

Good teeth mean good health.

The physical examination of school children shows that in very many instances the teeth are in a decayed and unhealthy condition. The first teeth in most cases are entirely neglected.

A child's first teeth are as important as its second teeth. They should be preserved until replaced by those of the second set.

If the first teeth are allowed to decay and are prematurely extracted, the jaw does not develop to its proper size and the large second teeth are crowded and often irregular causing marked change of features.

Decayed and irregular teeth produce uncleanliness, pus from abscesses, diseased gums and toothache. The child cannot properly chew its food.

Improperly chewed food, mixed with pus, causes digestive disturbances and general poor health, and handicaps the child's progress in school.

Most disease germs enter the body through the mouth. A child with a diseased and unclean mouth is much more likely to contract any contagious disease, which may rob it of its proper chance of physical and mental development.

Clean teeth seldom decay.

Teeth should be brushed every night and morning, and after each meal, using a small toothbrush with spaces between rows of bristles, and a paste or powder. If no other mouthwash is used—salt water as a wash and gargle is very beneficial. Use the "up and down" method in brushing.

The first teeth of the second set are the **"six year molars"** which come at the age of six years, just back of the last teeth of the first set. Watch for them, and make a special effort to preserve them. They are the most important of the second and permanent teeth and greatly influence the proper growth of the other teeth and jaws.

Good teeth are necessary to proper mastication.
Proper mastication is necessary for good digestion.
Good digestion is necessary for proper assimilation.
Proper assimilation is necessary for good health.

FIG. 128. Instructions to parents on the care of teeth $5'' \times 8''$.

St. Louis Public Schools
School Hygiene Division

CARE OF THE TEETH

FOR PARENTS OR GUARDIANS

of Children who have Received Treatment at the Dental Clinic of the St. Louis Public Schools

CLEAN TEETH DO NOT DECAY

Your child's teeth are now clean and healthy but will not remain so unless you insist upon these rules for keeping the mouth and teeth clean.

RULES FOR KEEPING THE MOUTH AND TEETH CLEAN

Chew food slowly and well.
Always brush teeth after eating and before going to bed.
Use a good stiff brush and plenty of warm water.
Brush hard—the teeth, the tongue and the gums.
Brush the upper teeth from the gums down.
Brush the lower teeth from the gums up.
Brush the surface of the teeth next to the tongue and the chewing surface also.
Place the tooth brush well back in the mouth so as to clean the back teeth.
Brush the back teeth first and for the longest time.
Fill the mouth with water and with the aid of the cheeks and tongue force the water back and forth in the spaces between the teeth.
Buy a tooth brush for each child in the family.
Take your children to the family dentist for examination and treatment twice a year.

FIG. 129. Instructions for the care of the teeth. 4″ × 5¾″ card.

St. Louis Public Schools
Dental Clinic

Instructions to Pupil

.....DENTAL CLINIC

EXTRACTING CLINIC

The mouth should be rinsed frequently with a hot salt solution.

If there is any trouble return to the clinic.

Hours: 9 A. M. to 12 M.
1 P. M. to 4:00 P. M.
(Except Saturday P. M.)

FIG. 130. Instructions after extraction, 3″ × 5″ slip.

Individual Record Forms

MILWAUKEE HEALTH DEPARTMENT
DENTAL CLINIC

DENTAL RECORD

Patient's Name _____ Age _____ Address _____
Surname Given Name

Father's Name _____ Nationality _____

Mother's Name _____ Nationality _____

_____ School _____ Grade _____ Average _____

GENERAL EXAMINATION

General con. of Mouth	No. Teeth Decayed	No. Teeth Missing	Mouth Deformities	Alveolar Abscess

DATE	Tooth Treated	Condition of Tooth	Treatment	Condition of Mouth	REMARKS

FIG. 131. Milwaukee. Upper part of sheet 8½″ × 11″. There are twenty-one spaces below column headings. Teeth are identified by a number code, which is the same as on New York Form.

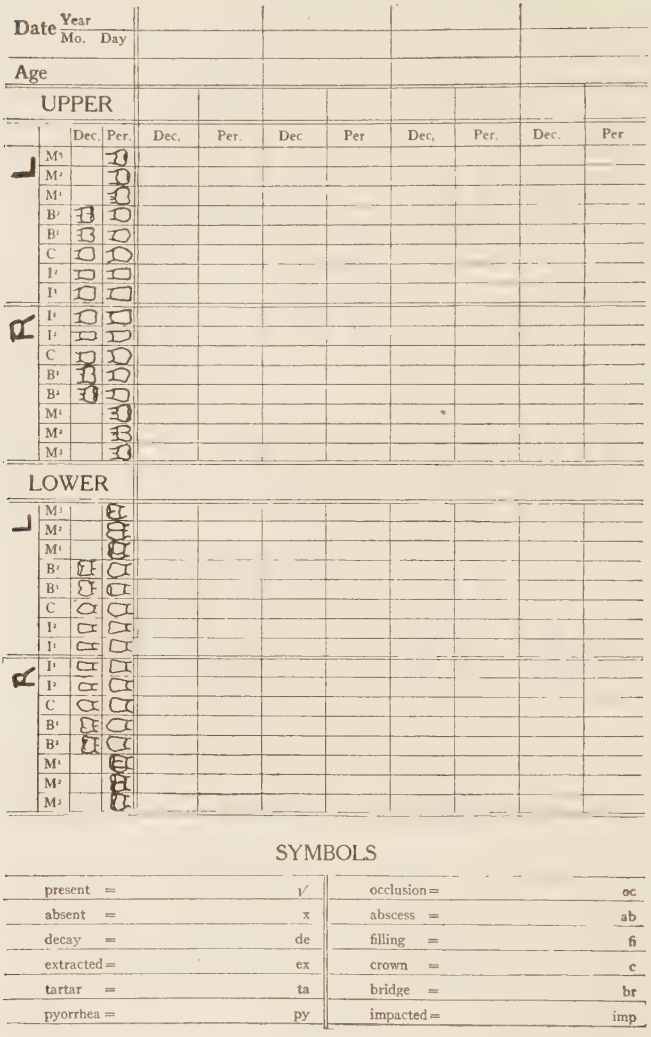


FIG. 132. University of Chicago. White card 5″ × 8″. Teeth are identified by code based on scientific names.

The University of Chicago

The Elementary and High Schools

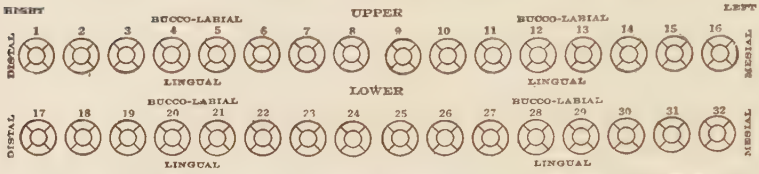
DEPARTMENT OF PHYSICAL EDUCATION AND HYGIENE

Last name _____ First name _____ Second name _____

Date Year / Mo. Day					Remarks on operations, special treatments, deformities, or pathological conditions.
Hygiene					
Malclusion					
Protrusion					
Recession					
Enamel					
Size					
Growth					
General condition					

FIG. 132. (*Continued.*)

ADVISORY COUNCIL ON ORAL HYGIENE
TO THE
DIVISION OF EDUCATIONAL HYGIENE, DEPARTMENT OF EDUCATION
CITY OF NEW YORK.



TO BE FILLED IN BY TEACHERS	FOR DENTAL RECORDS	FOR STATISTICS
NAME	CLEAN.....FAIRLY CLEAN.....NOT CLEAN	TOTAL NUMBER TEETH EXTRACTED
ADDRESS	NORMAL OCCLUSION. YES.....NO.	" " " UNERUPTED
AGE—YEAR.....MO.....DAY	MALOCCLUSION	" " CAVITIES
SEX	CLASS I	NORMAL OCCLUSION
WHERE BORN { FATHER / MOTHER / CHILD	CLASS II DIV. 1.....DIV. 2	MALOCCLUSION
WHITE.....COLORED	CLASS III	1st MOLARS LOST
HEIGHT.....WEIGHT	RECORDED BY	2nd " "
GRADE	EXAMINED BY DR.	1st PREMOLARS LOST
SCHOOL	ORTHODONTIST DR.	2nd " "
PRINCIPAL	DATE OF EXAMINATION	AGE
ANY EARLY ILLNESS, WHAT, AND AT WHAT AGE?		COLOR
	—SYMBOLS—	HEIGHT IN INCHES
	O—CAVITY	WEIGHT IN LBS.
	+—EXTRACTED	GRADE
	#—BADLY DECAYED	CAVITIES 1st MOLARS
	U—UNERUPTED	" 2nd "
	•—FILLING	" 1st PRE. MO
	•O—RECURRENT DECAY	" 2nd " "
		SEX
		AMERICAN
		FOREIGN
		ILLNESS
		" AGE

	Yes Date	No	Doubtful
MEASLES			
SCARLET FEVER			
DIPTHERIA			
CHICKEN POX			

FIG. 133. New York City. $7\frac{1}{4}'' \times 8\frac{1}{2}''$ sheet. The tooth diagram makes it possible to record cavities on the surface on which they are located. Probably the best and simplest dental diagram for records. A large insurance company uses the same diagram for employee's dental records.

OAKLAND PUBLIC SCHOOLS

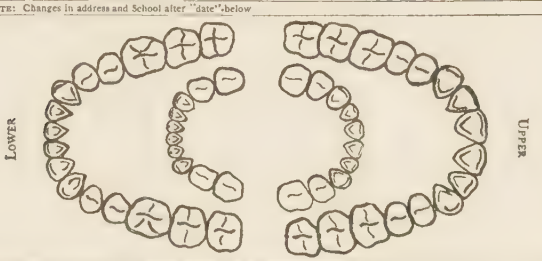
DENTAL HISTORY

Case No. First Name Last Name

Address

Consent of Parent; general Extraction Phone

NOTE: Changes in address and School after "date" below



Date	No.	Diagnosis—Treatment	Operator	School	Gr.	Age

FIG. 134. Clinic Record Card 8″ × 5″. Chart of both sets of teeth.

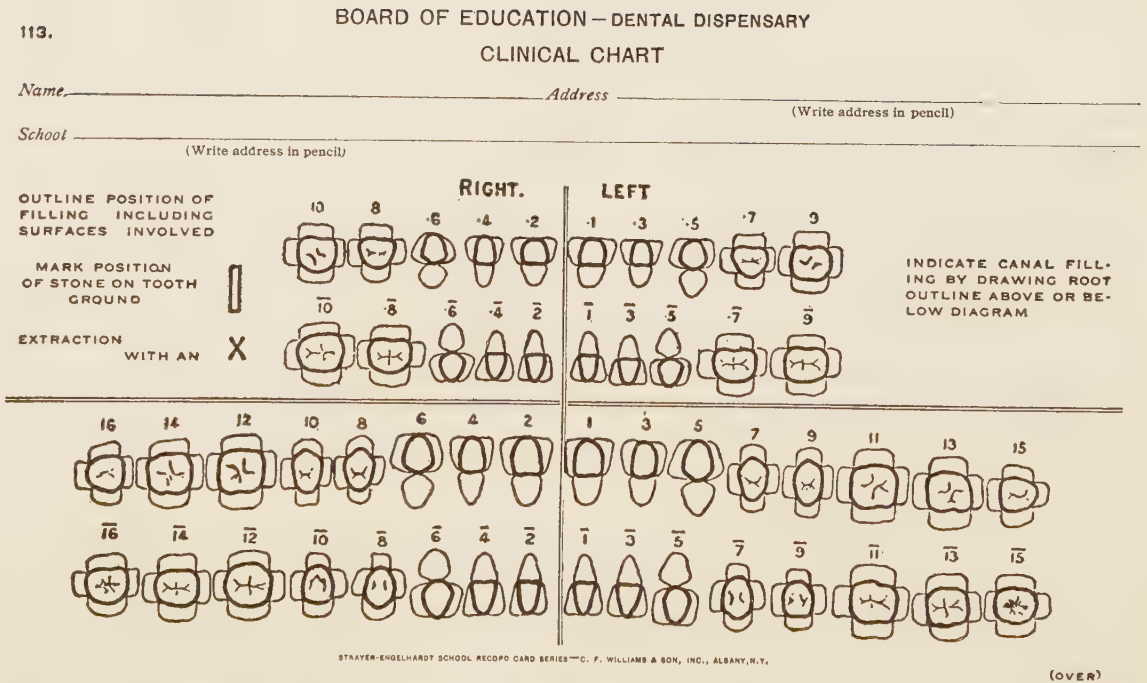

113.
BOARD OF EDUCATION — DENTAL DISPENSARY
CLINICAL CHART
Name
Address
(Write address in pencil)
School
(Write address in pencil)
OUTLINE POSITION OF FILLING INCLUDING SURFACES INVOLVED
MARK POSITION OF STONE ON TOOTH GROUND
EXTRACTION WITH AN X
RIGHT.
LEFT
INDICATE CANAL FILLING BY DRAWING ROOT OUTLINE ABOVE OR BELOW DIAGRAM
STRAYER-ENGELHARDT SCHOOL RECORD CARD SERIES — C. F. WILLIAMS & SON, INC., ALBANY, N.Y.
(OVER)

FIG. 135. Both sides of the popular Strayer-Englehart Record. White card 5″ × 8″ printed in red. Excellent diagram of both sets of teeth. Showing all surfaces. Reprinted by permission of the authors. Number code is unique.

DATE	*	NO. OF TOOTH	OPERATION	OPERATOR	DATE	*	NO. OF TOOTH	OPERATION	OPERATOR	DATE	*	OPERATION	OPERATOR

Dates are recorded 1918-3-22.

*Code: / = operation done with parent's consent.
X = operation at pupil's request.

FIG. 135. *(Continued.)*

Departmental Report Forms

OAKLAND PUBLIC SCHOOLS

DENTAL REPORT OF SCHOOL PRINCIPAL

School M_____ Oakland, Calif. _____

1. Was operation of Clinic satisfactory to you as principal?_____

_____

2. What was the value of the clinic to your school?_____

_____

3. Was the operator prompt?_____

4. Was the secretary prompt?_____

5. How long will you desire the Clinic next year?_____

6. Summary of work:

1. Dentist No. ½ days_____ No. full days_____
   Dental Hygienist No. ½ days_____ No. full days_____
   Dental Secretary No. ½ days_____ No. full days_____

2. Number of children examined_____

3. Number of tickets obtained_____

4. Number of tickets sold_____

5. Number of tickets refunded_____

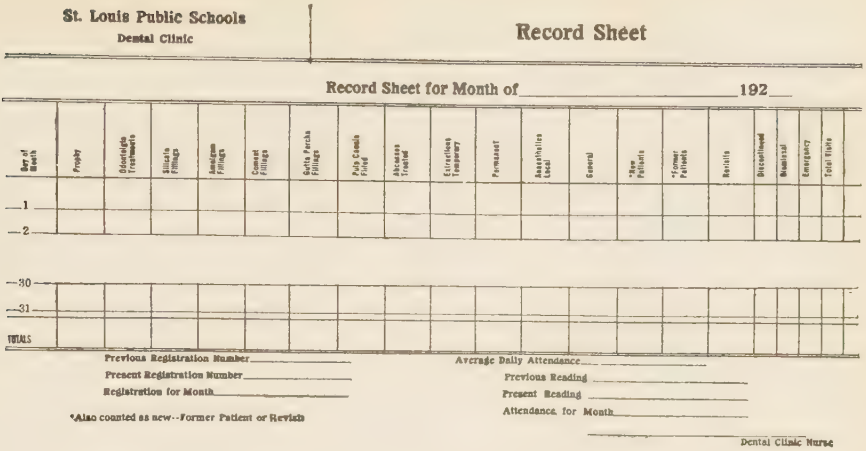
6. Number of tickets returned to Health Development Dept._____

7. Additional Remarks:

Approved by:
FRED M. HUNTER.

_____
Principal.

Fig. 136. Principals report sheet 8½″ × 11″.



St. Louis Public Schools
Dental Clinic

Record Sheet

Record Sheet for Month of _____ 192__

Day of Month	Prophy	Odontalgia Treatments	Silicate Fillings	Amalgam Fillings	Cement Fillings	Gutta Percha Fillings	Pulp Canals Filled	Abscesses Treated	Extractions Temporary	Extractions Permanent	Anesthetics Local	Anesthetics General	*New Patients	*Former Patients	Revisits	Discontinued	Dismissed	Emergency	Total Visits
1																			
2																			
30																			
31																			
TOTALS																			

Previous Registration Number _____
Present Registration Number _____
Registration for Month _____

Average Daily Attendance _____
Previous Reading _____
Present Reading _____
Attendance for Month _____

*Also counted as new--Former Patient or Revisit

Dental Clinic Nurse

FIG. 137. Top and bottom of Monthly Report Sheet $8\frac{1}{2}'' \times 11''$

EXAMPLE OF A COMPLETE DENTAL HYGIENE PROGRAM[1]

ATLANTA, GEORGIA

"This work is done entirely by the Oral Hygiene Division of the City Health Department with the consent and cooperation of the School Department. In Mr. Sutton, who strongly believes in health education, we have one of our strongest advocates.

"No clinical work is done in the schools. The examination begins when school opens in September and continues as rapidly as possible until every child is examined. While these are going on, lectures are being given to each class on preventive dentistry, using the simplest possible presentation suitable to the age and mentality of the child.

"Those found with defective teeth are given a notice to their parents stating that fact and urging that they be given attention by their family dentist. Those who have no family dentist and are financially unable to have the work done may apply to the principal of the school or to the school nurse for an authority card, which, when properly filled out and signed by the parent or guardian, will admit the child to the clinic for free work. The family dentist is asked to sign a certificate to the effect when he has finished the work for any school child.

"This system of course is subject to changes and alterations as conditions change.

"We have made what we think, a wonderful record, so far as practical results are concerned.

"During the past school year, the hygienists examined 27,839 children with results as follows:

No. examined	27,839
No. with defective teeth	14,256
No. of cavities in temporary teeth	29,441
No. of cavities in permanent teeth	13,275
Total No. of cavities	42,716

"The results of the examination for the previous year were as follows:

No. examined	20,727
No. with defective teeth	14,564
No. of cavities in temporary teeth	34,330
No. of cavities in permanent teeth	21,668
Total No. of cavities	55,998

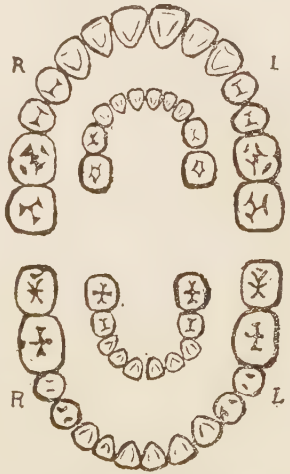
[1] Personal communication, from C. T. Hall, D.D., Director of the Division of Oral Hygiene, City of Atlanta.

NAME (Family Name) (Given Name) SCHOOL GRADE

COUNTY PARENT OR GUARDIAN MAIL ADDRESS

Race: W. C. Other Sex: M. F.

Date of Birth: Year: , Month , Day



	1st	2d	3d	4th	5th	6th	7th	8th
Number of examination								
Date of examination								
Normal occlusion								
Malocclusion, slight								
" marked								
Ability to masticate, good								
" " " fair								
" " " poor								
Tongue, coated								
Color of gums, pink								
" " " light red								
" " " dark red								
Calculus, slight								
" " extensive								
Stains, slight								
" extensive								
Use of brush daily								
" " " occasionally								
" " " never								
Has visited dentist								
No of cavities and roots								
No. of fillings								
No. of teeth crowned or on bridges								

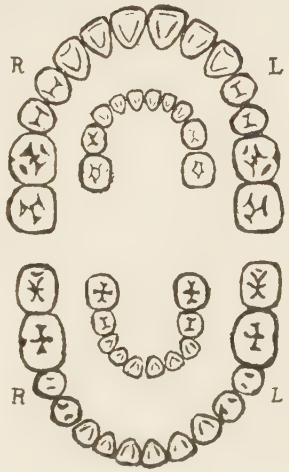
CITY HEALTH DEPARTMENT
DIVISION OF ORAL HYGIENE
ATLANTA, GA.

Code: Plot carious areas on chart. Teeth missing—M. Roots remaining—R. Fistulae—F. Caries—C. Draw line from defect and indicate its character and number of examination. Example, C1. (caries, first examination).

ORAL EXAMINATION OF SCHOOL CHILDREN

FIG. 138. Atlanta, Georgia. Dental Record Card for each pupil. Card 5" × 8".

RECORD OF OPERATIONS



CODE:

A.—Amalgam
C.—Cement
S.—Synthetic
G. P.—Gutta-percha
X.—Extraction
R. T.—Root treated
R. F.—Root filled
P. R.—Pulp Removed
A. L.—Abscess lanced
C. R.—Calculus removed
P.—Prophylaxis

YEAR OR GRADE							
1	2	3	4	5	6	7	8

Number each operation with serial number 1, 2, 3, 4, etc. Outline areas filled on diagram and draw a line from them and mark with serial number and code letter (Example 1A). Enter serial number and date of operation in column representing year or grade at time of operation. Example: 1-3|3|20 entered in column 3 would indicate that on March 3, 1920, while in the third grade pupil had operation performed. Referring to the chart we find (1A) an amalgam filling was inserted. Record for eight grades can be kept on one card.

FIG. 138. Reverse side. (*Continued.*)

"By comparing the two sets of figures, you see that the percentage of children with defects at the time of examination, has been reduced from 70 percent to 51 percent and that, while we examined 7,112 more children in 1924–25 than in the previous period, we found 13,232 fewer cavities. This result is very gratifying, but the thing we are especially proud of, is the fact that we have established, what we believe to be, a worlds' record in the practical results we have obtained.

CITY HEALTH DEPARTMENT
Division of Oral Hygiene
ATLANTA, GA.

_____192____

To the Parents of_____

Grade_____ School_____

Your child's mouth has been examined and appears to need dental attention. You are advised to consult your dentist promptly, so that the necessary work may be done to prevent future loss of teeth and probable injury to health.

CHAS. T. HALL,
Dental Director.

FIG. 139. Notification to parents. 3" × 6".

"In 28 schools out of 40, we have succeeded in getting 100 percent of the work done and 85 percent in the other 12 schools, which makes 95½ percent for all. Thus we have succeeded in reducing the defectives from 51 percent at the time of examination to 4½ percent at the close of the school term.

CITY HEALTH DEPARTMENT
Division of Oral Hygiene
ATLANTA, GA.

_____192____

Dr. Chas. T. Hall Director:

You are hereby authorized to do any dental work for my child that you deem necessary.

Signed_____
Parent or Guardian.

Name _____

Grade _____

School _____

FIG. 140. Permission slip 3" × 6".

"We have not yet compiled the statistics to show what effect this has had on attendance and efficiency. In one school where a special test was made there were 987 children in attendance and 1,600 school days were saved in one year. The percentage of failures was reduced from 28 per cent to less than 8 percent and, as it costs $40.00 to carry each child through a year of school in Atlanta, the city will be saved over $200,000 by our work this year, provided the same ratio holds good."

The various forms used in the Atlanta Oral Hygiene Program are shown in Figs. 138, 139, 140, 141.

CITY HEALTH DEPARTMENT
Division of Oral Hygiene
ATLANTA, GA.

_____192____

I have examined the teeth and performed all necessary work for

Name _____

Grade _____

School _____

_____
Dentist.

In order that our records may be completed the dentist is requested to sign and mail this card, when work is finished, to Dr. Chas. T. Hall, Director of the Clinic.

FIG. 141. Dentist's report on case. 3" × 6".

TECHNIC FOR CLEANING THE TEETH

Methods vary. The scientifically correct method for cleaning of the teeth has been adopted recently. At present the best authorities insist on a small brush since not over two teeth can be touched by the surface of the brush in any case and a small brush is more easily handled and will reach any desired point in the mouth more easily than a large brush.

Cleaning technic is based on the following recognized steps:

1. In the upper jaw just behind the last molar on each side, and to a less extent in the lower jaw, there is a region bounded by the last tooth, the gum, the cheek and the anterior pillars which is easily a resting place for odd bits of food. Any food residues must be removed from these regions.

2. All the surfaces of the teeth must be cleaned. Tests with tooth-brushes have shown that only about one-half of the biting surface of a tooth, including the highest point on the lateral edge, can be cleaned or even touched by the bristle during one stroke. Therefore the brush is slanted outward and given several strokes back and forward, and then slanted inward for a similar procedure. This is done on both sides of the jaws, both upper and lower. The teeth in the front of the mouth, because of their pointed rather than flat biting surfaces, offer less possibility of food deposits and can be cleaned by one motion of the brush, as far as the biting surface is concerned.

3. Food is commonly deposited between the teeth rather than on their broad surfaces. Therefore special emphasis must be made on brushing the points where the teeth touch each other as they lie side by side. A downward stroke in the upper jaw, and an upward pull in the lower jaw prove efficient. Brushing across, rather than up and down, merely drives the food further between the teeth. The long way of the brush corresponds to and should be parallel with the long axis of the jaw in cleaning the articulating surfaces.

4. The mouth is to be rinsed. This is best done by taking a sip of water and simply letting it lie in the mouth for a moment without sloshing it about. Repeat this three times, since it has been found that the third washings are comparatively clean.

5. The teeth should be cleaned several times a day, preferably at least in the morning and again at night; oftener and particularly after meals is better.

The newest type of brush is very much like the engine propelled brush which the dentist commonly uses in cleaning teeth. It is set in a suitable metal handle and has the advantage of reaching all points in the mouth easily. Usually a small type of brush with medium stiff bristle is satisfactory. Some believe that it may be desirable to have several brushes and use them in rotation. At least no brush should be used by more than one individual.

Many dentists use a solution of Iodine (Lugol's) to bring out dirty areas on the teeth more clearly. A dentist can teach his patients to check up their cleaning once in a while by this method and thus assure themselves of a correct technic.

The manner of holding the brush is unimportant provided the necessary duties are suitably performed by it.

Brushes may be obtained for distribution for ten cents by purchasing seconds from high-grade manufacturers, preference being given to small brushes.

Use of floss silk. The wide kind is best. Use a section about twelve inches long. Hold one end between the thumb and first finger of the left hand, and wrap the floss twice around the end of the first finger. Do the same with the thumb and first finger of the right hand. Now, by using combinations of the ends of the thumbs and second fingers, the floss may be carried into the mouth and forced carefully between all the teeth. Rub it back and forth against the surfaces of each tooth to loosen and remove the food and clean these surfaces. Don't saw into the surface of the tooth or against the gum.

Lime water dissolves the glue-like deposit of mucin on the teeth and thus prevents bacteria clinging to them; should be used as a routine. Milk of Magnesia is a good mouth wash where the teeth are sensitive when acid fruits are eaten. It also prevents the green stain on children's teeth which comes from an acid condition.

Rules

1. Clean the teeth four times a day—before breakfast and after each meal (Fones).
2. Brush two minutes each time by the clock. Brush the gum.
3. Have a strictly individual brush.

TOOTH BRUSH DRILL

Many methods of conducting tooth brush drill have been devised and used. No one seems markedly superior to others. The reader can easily secure directions, if desired, through such organizations as the Red Cross or the state departments of health.

Once useful, the tooth brush drill is now a makeshift. It has been only partially successful. The technic may be demonstrated to a small group but the difficulty is in being sure that each child has the correct technic and this can only be attained by handling each child as an individual, not a

member of a group. Where it is a case of use the drill, or not teach by any method, the drill is permissible.

The technic[1] recommended in New York State is as follows:

"The tooth brush drill is but a lesson designed to teach the child the details and importance of a very good habit. It will insure each having an individual brush and knowing how to use and care for it. Actually doing it is better than mere description or demonstration. Have a drill every week for the first month, then once every month or two to correct faulty technic and maintain interest. Each child should bring a brush wrapped in plain paper, keeping it wrapped until drill. Leaders may be selected from among those who learn quickly to help train small groups. Water is not necessary in the drill.

"For the outside surfaces use a combing motion, starting well up on the gums (or a rotary motion, making small circles). A rapid movement with a light touch will clean the teeth and stimulate the gums. For the inside surfaces use the same combing motion. Always feel that the bristles are cleaning between the teeth and along the gum margins. Never use a sawing motion or much force—you will injure both gums and teeth. The only place to scrub is on the chewing surfaces.

The Drill

Outside surfaces (with brush under cheek).

'Upstairs'—Light, rapid, down (or circular) strokes.
Left—front—right (count 1 to 16 for each).

'Downstairs'—light, rapid, up (or circular) strokes.
Left—front—right (count 1 to 16).

(Outside surfaces may be combined by closing the teeth nearly together and using larger circles.)

Inside surfaces.

'Upstairs'—light, rapid, down strokes.
Left—front—right (count 1 to 16).

'Downstairs'—light, rapid, up strokes.
Left—front—right (count 1 to 16).

Chewing surfaces.

'Upstairs'—rapid, scrubbing motion.
Left—right (count 1 to 16).

'Downstairs'—rapid, scrubbing motion.
Left—right (count 1 to 16).

"There are sixteen areas to clean so we use sixteen counts to each, moving the brush back and forth to reach every tooth. An imaginary cup of water may be held in the left hand, dipping the brush at intervals. Also imitate rinsing the mouth (making up faces). Brush the teeth night and morning and after meals if possible; but especially brush them at night as most decay takes place at that time while the mouth is at rest. Tooth paste or powder

[1] The University of the State of New York, the State Department of Education, Medical Inspection Bureau.

or just common salt will help to remove stains and cleanse the mouth. A very efficient part of the 'habit' is to take a full two minutes to complete the process. Visit the dentist twice a year for a more thorough cleaning and any slight repairs."

DIET FOR DENTAL HEALTH

Cross of the Forsyth Institute feels that a clean tooth never decays; it must be sound from the first, if his statement is to be held true. Hence one must regard as fundamental, careful attention to the diet of mothers during the child's early life, especially in the prenatal period, and emphasizing particularly the need of suitable mineral constituents of the diet. Modern reparative dentistry failed to check the incidence of carious teeth, and other action along pediatric lines was shown to be necessary. Teeth are essential to health only in a secondary degree since their health is a product of nutrition. The lack of teeth is of less importance than the possession of decayed and abscessed ones.

Thoma and others have emphasized a similar point of view and have held that sweets and other foods which coat the teeth, through local action in the mouth, represent the greatest danger provided the mineral constituent of the diet is adequate and the general nutrition is good. Recently a few dentists have doubted the harmfulness of sweets to the teeth through local action in the mouth.

Coarse food acts automatically as a cleaner for the teeth.

RELATION OF THE TEETH TO GENERAL HEALTH

Unquestionably the general health of the body reflects upon the teeth. Hence the teeth of the undernourished child will not be in as good condition as those of the normal, well child. Similarly poor teeth injure the general health both through their inability to perform properly their function of chewing the food and through the absorption of bacteria and bacterial products from the mouth through large wide-open cavities in the tooth surfaces.

The following table suggests a remarkable reduction in regard to death from contagious disease in Bridgeport by comparing 1914 (when Fones' dental hygiene work began) and 1918:

	1914 (Work Begun) Death Rate per 100,000 Population	1918
Diphtheria	36.6	18.7
Measles	20.0	4.1
Scarlet fever	14.1	0.5

Thoma and others believe this reduction is due at least partly to the improved care of the school children's teeth following the onset of the dental hygiene program. Many believe that proper care and prophylaxis of the teeth lowers the likelihood of contagious disease per se.

Many patients with mental disturbances improve when the teeth have been given attention. Many believe, but can not positively prove, that

mental disease may be prevented in many instances by proper care of the teeth. This idea is based on the toxic focus theory—as one cause for insanity.

Few definite studies have been reported on the effect of uncared for teeth on scholarship. One may reasonably assume that there is a very definite relationship between the condition of the teeth and mental activity, if only because bad teeth affect health and health affects scholarship. This view is supported by Fones' findings in Bridgeport, Conn., that retardation decreased fifty percent from 1912 to 1918, in spite of an increase in the number of pupils per room and number of pupils per teacher; the improvement being considered due to the excellent school dental program installed in that city in 1914.

RURAL DENTAL CLINICS

Travelling rural clinics where no local dentist is available have proved successful in Vermont under state auspices, in Nova Scotia under the Red Cross and elsewhere. Such clinics have portable equipment and care for such dental cases as come to them. They may be under public or semi-private auspices. Usually the work is not confined to children of school age; all who desire it receiving the benefit, and paying as they can afford. In such clinics, every effort is made to make known the presence of the clinic to all who may need its services.

ERUPTION OF TEETH

The following tables from Holt[1] show the approximate sets of teeth possessed by children of different ages and the usual time for eruption of various teeth:

1. The order and average appearance time of the first set of teeth:

Two central incisors	6 to 9 months
Four upper incisors	8 to 12 months
Two lower lateral incisors and four anterior molars	12 to 15 months
Four canines	18 to 24 months
Four posterior molars	24 to 30 months

2. At 1 year a child should have ..... 6 teeth
   1½ years a child should have ..... 12 teeth
   2 years a child should have ..... 16 teeth
   2½ years a child should have ..... 20 teeth

3. The average time of the appearance of the second teeth is:

First molars	6 years
Incisors	7–8 years
Bicuspids	9–10 years
Canines	12–14 years
Second molars	12–25 years
Third molars	17–25 years

[1] Holt, L. E.: Diseases of Infancy and Childhood, D. Appleton & Co., 1922.

CHAPTER X

CORRECTION AND TREATMENT OF PHYSICAL DEFECTS

GENERAL HEALTH OF SCHOOL PUPILS

The statistics regarding health defects in school children are startling even to those familiar with school health supervision. In Philadelphia in the year 1922, a total of 230,528 pupils were given complete physical examinations by the medical inspectors. Two hundred forty six thousand, one hundred sixty-six defects were discovered. Seventy-four thousand and nine pupils or about one-third, were found free from defects. Of the defects, 25,276 were of the eyes, 49, 731 nose, throat and mouth; 2,699 ear; 128,178 teeth; 10,391 orthopedic; 12,871 nutrition; 1,657 heart; 1,086 nervous system; 11 gastrointestinal; 21,726 skin; 3,060 acute illness and accidents; 2,270 miscellaneous.

In New York City in 1922, the physical defects found in school children examined by medical inspectors were as follows:

	Total
Number of physical examinations made	294,754
Number found needing treatment:	
Number with defects other than of teeth only	100,611
Number with defects of teeth as only defect	102,573
Defects found:	
Defective vision	33,400
Defective hearing	2,109
Defective nasal breathing	37,822
Hypertrophied tonsils	44,270
Pulmonary disease	466
Cardiac disease	3,962
Nervous affections	1,921
Orthopedic defects	2,617
Malnutrition	46,249
Defective teeth	174,290
Number reported treated	59,047

In present school groups not more than five or ten percent of all children, whether in country or city, are entirely free from physical defects, actually or potentially detrimental to health. One or two percent are mentally defective; a similar number have heart defects; between five and ten percent have had or now have some form of tuberculosis; twenty to thirty percent or more are malnourished; ten to thirteen percent have defects of vision; more than thirty percent have some defect of nose and throat, such as diseased tonsils, adenoids, etc.; thirty to forty percent have defects in posture, such as round

shoulders, weak foot arches, etc.; from fifty to ninety-eight percent have neglected defective teeth.

In a preschool group of 1061 children examined in New York 29.7 percent were undernourished; 38.2 percent had defective nasal breathing; 40.2 percent, enlarged tonsils and adenoids; 59.2 percent, defective teeth; other defects showed lower percentages. This shows in one group what the school had for material to begin work with.

The fact that one-third of all recruits in the past war were found unfit for first-class service is sufficient evidence to show the unsatisfactory health of the group who graduated from the schools fairly recently.

Following are the findings of the physical examinations of an average first year high school class in New York (a group of 1,671). These figures represent end results of excellent elementary school health work.

General Summary, Physical Examination and Follow-up Report, High School Pupils Entering Feb. 1920, Sept. 1920, Feb. 1921

Defects	Percent of cases in each group			Average percent, all groups
	Boys	Girls academic course	Girls business course	
Vision	27.754	21.282	23.802	24.279
Hearing	.806	.252	111	.389
Teeth	30.849	20.712	18.356	26.699
Nasal breathing	4.290	3.813	3.185	3.762
Tonsils	9.028	14.501	12.535	12.021
Nutrition	21.457	24.835	12.988	19.760
Heart	11.279	3.508	5.609	6.798
Lungs	7.000	2.231	3.255	4.162
Feet	2.091	8.508	7.929	6.176
Spine	1.861	7.686	8.190	5.912
Nervous diseases	.585	5.553	2.528	2.888
Pupils having 1 defect	34.603	32.449	27.336	31.462
Pupils having 2 defects	23.512	16.683	15.640	18.611
Pupils having 3 defects	9.542	8.186	7.540	8.422
Pupils having 4 defects	3.350	3.662	2.898	3.303
Pupils having 5 defects	.044	1.529	.936	1.036
Pupils having 6 defects	.....	.....	.111	.037
Total pupils having defects	71.651	62.509	54.461	62.871
Normal pupils	28.349	37.491	45.539	37.129
Treatment				
Pupils with defects showing evidence of treatment	73.029	62.092	71.326	68.815
Pupils with defects presenting no evidence of treatment	26.971	37.908	28.674	31.185
No. of pupils examined	501	300	870	1,671

DEFECTS AND DISEASES AMONG SCHOOL CHILDREN

Diagnosis. In most cases, it is neither necessary nor desirable that the school health service go as far as to make a complete diagnosis of the existing disease. Frequently it is wiser not to do so. If a physical defect is discovered during the course of a health examination the school physician usually has not at hand sufficient equipment to confirm any other than a most obvious diagnosis. Were he to attempt to diagnose with such inadequate facilities, there would be a danger of inaccuracy. Furthermore, the physician who will eventually treat a case is entitled to make the final diagnosis of the case, and too definite interpretation of findings on the part of the school doctor may result in embarassment for both physicians. Again, if, as is sometimes necessary, the school health examination as a whole or in part, must be made by non-medical persons, provided no diagnosis as such is made, there is no cause for the common unjust accusation of "lay diagnosis." The main objective for the school is to discover any defects and urge and assist the parent to take the child to a physician or clinic for complete diagnosis and treatment.

Should there be suspicion of contagious disease, the school must always adopt the attitude that a case is contagious till proved otherwise. Thus a rash may not necessarily be diagnosed as Measles by the school but the parent should be told that the disease is suspected and advised to seek a physician. The school in the meanwhile inaugurates the same precautions as if the diagnosis had been definitely made, since the success of preventive work often depends on its early inception.

Certain minor skin diseases such as pediculosis and scabies, and possibly ringworm may warrant diagnosis and in some cases treatment on the part of the school. In such cases a printed slip is prepared for the child to take home, and, from the directions thereon, a simple home remedy can be prepared which provides rapid and adequate treatment for the disease in the large majority of cases. Should early cure not result, the aid of the clinic must be sought. Examples of these "home treatment" forms are printed elsewhere in the book.

Classification of health defects. For school purposes defects may be divided into two classes: (*a*) Permanent. (*b*) Temporary.

Permanent or incurable defects may be the sequelae of such diseases as infantile paralysis, diphtheria or other contagious diseases, and the result of injuries. Discovery of such defects is important chiefly to avoid making them any worse and to permit the school to make whatever allowances are necessary for the child in his program and to make whatever special provision is necessary to offset the handicap as far as possible. Some cases in this group can be improved, but not cured.

Temporary defects may be skin diseases, chiefly of the communicable variety; the so-called diseases of childhood, such as scarlet fever and whooping cough; remediable anatomical or physiological defects; defects demanding special attention, such as diseased tonsils, where removal is likely to result

in cure in properly selected cases; malnutrition. This group by definition includes all curable cases.

Both these classes may be subdivided into serious and non-serious types, the borderline in the temporary type separating those conditions where serious damage might result from failure to provide treatment, such as untreated boils which become carbuncles. The amount of disability determines whether a permanent defect may be classed as serious or non-serious. Such a classification is helpful in determining what pupils shall first receive medical attention and follow up. Up to the present time the percentage of cases of total disability caused by defects has been tabulated only for accident and compensation cases and to quote any such statistics would be of no assistance to the school health worker.

PREVENTIVE MEASURES

School administration and preventive medicine. The school program throughout is carefully based upon sound educational theory and on the definite purpose of assuring and promoting the best possible health for every pupil and school employee. The construction of the day's program, with the arrangement of subjects; the care of the teacher's health, through consideration of the demands of her work upon her strength, and through adequate wages to provide adequate living; the hygienic construction and health-promoting care and use of the school building; the arrangement of a natural program of physical education which will tend to develop not only a body physically efficient as possible, but certain attitudes and qualities such as leadership, self-dependence, team spirit, fair play, consideration for others; the program of health education through which the pupil is taught how to live healthfully as an individual and as a member of a community, who has definite standards of life to meet when the health of others is concerned; the special methods and means used by the school's department of health supervision—all these factors are not only preventive—they may be considered capable of positive promotion of health.

Preventive Measures and Classes of Defects Which Permit Such Measures

In the health supervision, many groups of defects permit the use of special preventive measures, and such defects and preventive measures are considered below in outline form. In many cases the details are given in other chapters.

Eye defects[1] **and methods of prevention.** Vision defects are prevented by:

1. Yearly eye tests in the school and notification of the parents and follow-up in case defects are discovered. Two test charts now in use are:

[1] The reader is referred to the report, "Conserving the Sight of School Children," prepared under the direction of Dr. Thomas D. Wood for the Joint Committee on Health Problems in Education, with the cooperation of the National Committee for the Prevention of Blindness. Obtainable from the latter committee at 130 East 22nd St., New York City.

EYE TESTING CARD

DIRECTIONS:—For testing the vision have your test card evenly hung the height of an average child's head and in a good light. Have the child stand 20 feet from the card, the light coming over his back; cover the left eye with a piece of card-board (not with the hand) and have him read, beginning at the top of the test card, as far as he can. Then cover the right eye and test the left. While testing either eye both eyes should be kept open. Normal vision is indicated as 20/20. With 20 as a constant numerator let the figures opposite the last line read on the test card stand as the denominator. Thus it will be seen that 20/20, 20/30, 20/50, 20/70, etc., will indicate visional capacity and should be so recorded. Sometimes vary the order of reading. DO NOT EXPOSE THE CARD EXCEPT WHEN IN USE.

FIG. 142. Paper chart 8½″ × 11″ covering necessary range of vision. An abbreviated Snellen chart and costs less than the full sized chart which ranges for 15 feet to 200 feet.

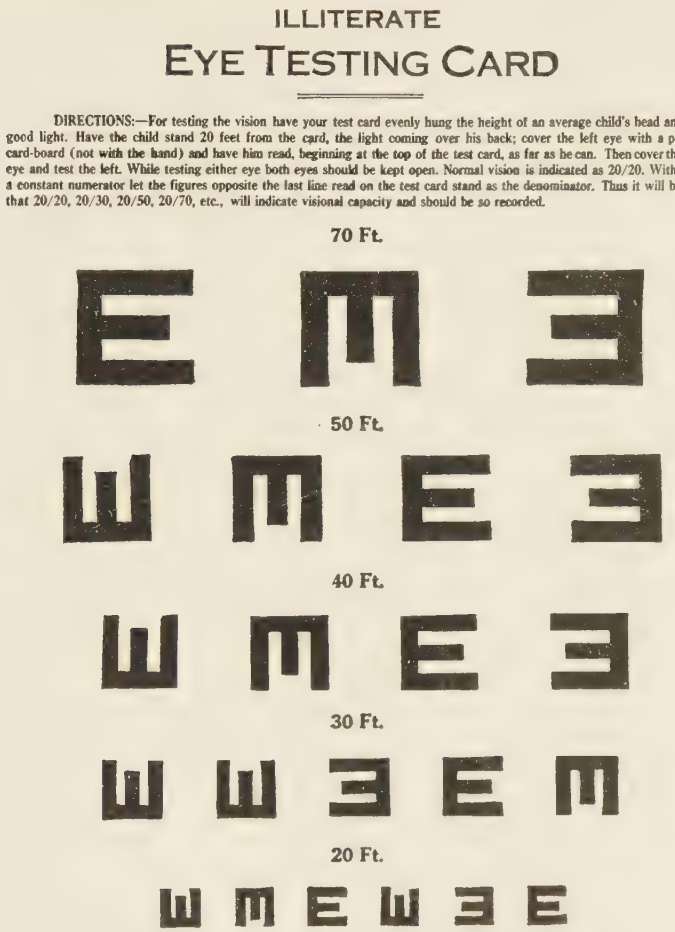

ILLITERATE
EYE TESTING CARD
DIRECTIONS:—For testing the vision have your test card evenly hung the height of an average child's head and in a good light. Have the child stand 20 feet from the card, the light coming over his back; cover the left eye with a piece of card-board (not with the hand) and have him read, beginning at the top of the test card, as far as he can. Then cover the right eye and test the left. While testing either eye both eyes should be kept open. Normal vision is indicated as 20/20. With 20 as a constant numerator let the figures opposite the last line read on the test card stand as the denominator. Thus it will be seen that 20/20, 20/30, 20/50, 20/70, etc., will indicate visional capacity and should be so recorded.
70 Ft.
50 Ft.
40 Ft.
30 Ft.
20 Ft.

FIG. 143. Paper chart 8½″ × 11″. Covers necessary range for test. Useful for illiterates, young children who do not know letters, and for older pupils who learn test charts. The junior author has found it useful for high school boys.

2. Proper lighting in the school;

3. Instruction in standards of proper lighting and use of the eyes.

Traumatic injuries to the eyes can be prevented, at least in part, by teaching pupils to avoid carelessness with dangerous objects.

Infectious eye defects, such as "pink eye," are prevented by (1) the exclusion from school of all cases till cured (sometimes the excluded child is provided with simple directions for treatment, as by 10 percent argyrol; (2) providing each pupil with materials which he alone shall use, as in the case of pencils and modelling clay.

Traumatic Injuries—Teaching Pupil to Avoid Carelessness with Dangerous Objects

Ear defects and methods of prevention. Defects of hearing are prevented by yearly testing of hearing and notification of the parents and follow-up in cases where defects of hearing are discovered—in many cases, such examinations result in the discovery of defects such as diseased tonsils and adenoids whose presence makes ear disease a future possibility.

A new group method of testing acuity of hearing.[1] "Apparatus, for testing simultaneously the hearing of a group of children, known as a 4A audiometer is manufactured by the Western Electric Company. This so-called Phonograph Audiometer was developed for this Company by its Research organization, The Bell Telephone Laboratories, at the insistence of the American Federation of Organizations for the Hard of Hearing that such equipment was needed in school surveys to find the hard of hearing child.

"The apparatus, which is portable, consists of a phonograph unit with the customary turn table, but with an electromagnetic reproducer replacing the usual mechanical-acoustic type. Special records are used involving numbers, diminishing in intensity in a known, measured manner, spoken by both masculine and feminine voices. The electrical impulses, generated by the reproducer, from these records are introduced into telephone receivers which are distributed about the classroom. These telephone receivers, of the headphone type, are arranged in trays to facilitate transportation; each tray containing eight receivers. By using the required number of trays it is possible to test as many as forty children at a time. This arrangement makes possible the testing of an entire class as a unit. Each ear is tested separately.

"The children record the numbers on sheets prepared for the purpose as long as they are able to hear them. At the conclusion of the test, the child's record is compared with a master sheet. A child's failure to obtain a normal mark may be due either to defective hearing or to a lack of understanding of the test. A retest eliminates the latter possibility.

"The time required for a test of forty children varies from twenty to thirty minutes, depending on the age of the children. Children over seven and a half years old can be tested satisfactorily with this apparatus.

[1] Fletcher, Harvey: Personal Communication.

"The children sorted out as having defective hearing by this process are then to be examined by the otologist."

Throat defects are prevented by yearly health examination and the follow-up of defects such as diseased tonsils or adenoids which may be discovered.

Defects of the teeth, *e.g.*, maleruption, malocclusion, caries, are prevented or remedied by examination if possible every six months with cleaning of teeth, and treatment of defects, care of the six year molars, dental hygiene.

Defects of the lymphatic glands are prevented or remedied by:

1. Discovery and removal of cause of secondary enlargement through health examination and follow-up.

2. In some cases the discovery of primary enlargement with consequent early onset of treatment under a physician.

Defects of the endocrine glands are prevented or remedied by:

1. Interest in and discovery of signs of endocrine imbalance during the yearly health examination.

2. Consideration of endocrine etiology for problem case presented by the school teacher for opinion—too few school physicians have such possibilities in mind.

Prophylaxis for endemic goiter.[1] In states and regions where endemic goiter prevails, definite plans have been undertaken to (1) assure early discovery of mild cases; (2) prevent the occurrence of the disease by administration of iodine; (3) demonstrate to the public the need for such measures by means of surveys.

The goiter survey in Wexford County, Michigan, during Dec. 1923, revealed the following:

		Percent
Total number of children examined	3,984	
Total number showing thyroid enlargement	2,216	55.6
Total number of boys examined	1,963	
Total thyroid enlargements among boys	934	47.6
Total number of girls examined	2,021	
Total thyroid enlargements among girls	1,282	63.4

In this region the city of Cadillac has water which shows a very slight trace of iodine; the villages of the county have water which shows no trace

[1] Olesen, R.: Methods of Administering Iodine for Prophylaxis of Endemic Goiter, Public Health Reports, Vol. 39, No. 2, Jan. 11, 1924, pp. 45–55.

Clark, T.: The Importance of Our Knowledge of Thyroid Physiology in the Control of Thyroid Diseases, an abstract of an article by Marine in Archives of Internal Medicine, Vol. 32, No. 6, Dec., 1923, p. 811. Public Health Reports, Vol. 39, No. 3, Jan. 18, 1924, pp. 109–111.

Goiter Survey in Wexford County, Michigan, Public Health Reports, Vol. 39, No. 14, April 4, 1924, pp. 663–664.

Olin, R.: Iodine Deficiency and Prevalence of Simple Goiter in Michigan, Jour. A. M. A., Vol. 82, No. 17, April 26, 1924, pp. 328–1333.

of iodine. The following table shows a remarkable difference in city and rural findings:

		Percent
Total number of boys and girls examined	2,247	
Cadillac, Percent where thyroid enlargement was present		50.4
Boys		41.8
Girls		58.0
Rural and village schools of county		62.2
Boys		54.2
Girls		71.0

Other factors besides the presence of a small amount of iodine in the Cadillac water were:

1. The city dweller probably secures more iodine in his food, partly through sea foods being more easily obtainable.

2. Medical treatment is more generally available in the city than the country.

The results of this survey and others, reveal the need for the administration of iodine in some form to growing children in the "goiter belt."

Methods of administration of iodine. (1) To everyone in a city, as through treatment of the drinking water, at definite periods during the year, the plan being to bring the iodine content up to that of good water supplies of regions where goiter is not prevalent. Goler of Rochester, N. Y., has used this plan. Objections raised have been chiefly that all persons in the city have to use the water. Furthermore, control is difficult and results depend on each person drinking enough water.

2. To school children alone, in some cities only to those children who were believed by physicians to need such prophylactic treatment.

Iodine may be administered by:

1. *Inhalation.* Secured by the suspension of a wide-mouthed bottle in the schoolroom, using a solution of 10 percent tincture of iodine. This method will administer the iodine but it is variable and accurate dosage is difficult.

2. *External application.* As by ointments, not agreeable; painting with iodine, which blisters the skin.

3. *Internally.* Where given internally the practices in various cities have been:

Akron, Ohio. In the Akron schools three-grain doses of sodium iodide were given in the drinking water once each day for two weeks each spring and fall.

Warren and Niles, Ohio. Stock solutions of sodium iodide were provided in each school for the treatment of such goiters as were detected.

East Cleveland, Cleveland Heights, and Shaker Heights, Ohio, tried to make the drug more palatable by combining it with sugar of milk, using a tablet having one grain of sodium iodide.

Switzerland. The iodine and chocolate tablet has been popular. Each tablet contains between five and ten milligrams of iodine. One tablet is given each week throughout the school year to children in need of this prophylaxis. A non-hydroscopic organic iodide is used which is practically

tasteless and very stable. American drug houses manufacture this tablet and it has been approved by the Council on Pharmacy and Chemistry of the American Medical Association. All schools in the Cantons of St. Gall, Berne, and Zurich have administered one such tablet to each school child, once a week, for 40 weeks of the school year.

Olesen, of the U. S. Public Health Service, writes that "In many places it is now the practice to have the school nurse give one tablet, containing 10 milligrams of iodine, once a week to each child in need of the prophylaxis."

4. *Iodized table salt.*[1] This seems to be the most logical procedure. Sloan believes that the concentration of iodine in table salt in the proportion of 1:5,000 is sufficient to produce results. He calls attention to the fact that most salt brines from which salt is crystallized contain a small amount of iodine but that this is left in the mother liquor. Forbes disclosed the absence of iodine in any one of 12 varieties of salt made in western New York, eastern Michigan, and Ohio. Therefore, table salt for prophylaxis would have to be artificially iodized. Hayhurst believes that salt for dietary purposes should be prepared from seawater or from inland sources known to contain sodium iodide. Most of the salt now used in United States is obtained from inland sources which are, for the most part, free from iodine. In Canada an attempt is being made to legalize the manufacture and sale of iodized salt.

5. *Kelp.* This is used with the food. It contains the same proportion of iodine as sea water.

Who should receive the iodine prophylaxis? Olesen, after a survey of the literature believes that both boys and girls should receive it, beginning earlier than adolescence since thyroid enlargement has been found in children between the ages of eight and eleven. Marine and Kimball have held that the prophylaxis should be extended only to girls between the ages of 11 and 16, the period of adolescence. The reader is reminded that during pregnancy, "Iodine should be administered under the direction of the medical attendant, thereby preventing the development of goiter in the child as well as in the mother—thereby adding to the present contention that preventive medicine for the child begins during the mother's pregnancy."

Skin defects.

Infectious diseases such as pediculosis and scabies, whose prevalence is due in the original cases to poor personal and home hygiene are prevented by:

Morning health inspection; exclusion of suspicious cases; home treatment slips where attendance will be improved; follow-up to the home, sometimes with demonstration of the treatment of these diseases that the home may care for them; teaching of personal hygiene in the school directly and through other subjects.

Chest defects.

1. Pulmonary disease may be prevented in: (*a*) Monthly weighing and taking height every three months, with comparison with standard height-weight-age tables; (*b*) examination by a physician of those outside the normal

[1] Recent reports favor intermittent rather than continuous use of iodine.

range, and those who undergo marked or sudden losses of weight; (*c*) teaching of health habits, such as sleeping with the windows open.

2. Heart disease can be prevented by: (*a*) Discovery and removal of foci such as diseased tonsils and abscessed teeth (which might result in heart disease), through the yearly health examination; (*b*) examination of athletes, who make special demands upon their hearts, frequently enough to detect signs of serious strain.

Note. In cases where disease has developed, adapt the child's school program to his individual physical ability.

Abdominal defects, such as acute conditions, are partly avoided through: (*a*) Teaching of proper health habits in diet and matters of elimination; (*b*) training the child to seek medical advice early in case of persisting pain; (*c*) early discovery of such cases in the classroom; (*d*) immediate notification of parents.

Hernias are avoided by: (*a*) Teaching the child proper methods of handling weighty objects; (*b*) developing physical strength and good muscles through the program of physical education, (*c*) urging medical advice in cases whenever discovered.

Orthopedic defects of the:

1. *Back* are avoided by: (*a*) Providing suitable and properly adjusted seats in the schools and seeing that the child uses them correctly; (*b*) teaching similar practices for use in the home; (*c*) a program of physical education definitely developing the back and abdominal muscles; (*d*) early discovery of beginning defects through health examinations; (*e*) corrective exercises as indicated; (*f*) proper care for malnutrition, following its early discovery through health examinations and weighing.

2. *Feet* are avoided by: (*a*) Teaching correct statics; (*b*) correct and properly fitting shoes; (*c*) early discovery of defects through health examinations and suitable corrective methods provided, such as exercises; (*d*) including in the physical education program exercises definitely promoting correct statics; (*e*) urging medical advice when defects require apparatus.

3. *Joints* are avoided by: (*a*) Early discovery of joint troubles through the health examination and the daily inspection by the classroom teacher; (*b*) the watchfulness of the physical education instructor.

Neurologic and psychologic defects are avoided by:

1. Observation of peculiar habits and mannerisms in the classroom and during the health examination; discovery of lack of rhythm or coördination during physical education exercises or play.

2. Mental testing of as many children as possible; particular interest in gifted children and in children two or three years retarded for other causes than poor understanding of English, with special psychological and physical investigations when indicated, and the construction by experts of programs for such cases as need them.

3. Early interest in "queer" or nervous children followed by a definite attempt to assist the parent in improving the condition. This is often accomplished by cooperating with mental hygiene clinics.

Nutritional defects are avoided by:

1. Early discovery of underweights by regular weighing and measuring and from this group and by means of the health examination, the early discovery and treatment of the malnourished.

2. Teaching of health habits.

3. Removal of causes of malnutrition by the family or the family physician, where the cause is discoverable; the family, by such methods as improving the diet and hours of sleep; the physicians, by discovery and removal of toxic foci.

4. Proper school lunches; midmorning milk lunches for younger children.

5. Competitions for good health, such as those based on classroom weight charts or classroom health scores, such as the admirable plan[1] devised by Dr. Taliaferro Clark of the United States Public Health Service.

Defects arising from septic conditions and acute injuries are prevented by:

1. Provision for proper first aid and teaching the children to seek it at the first possible moment.

2. Expecting early treatment to lessen the possibility of the condition becoming serious.

3. In older children, teaching them methods of giving first aid.

Rabies is prevented through immunization of pets, as practised in Detroit and elsewhere.

DEFECTS COMMONLY OBSERVED

This book deals with school health work from an administrative point of view. Certain procedures in regard to health examinations or health inspections have been outlined because the methods used are more or less peculiar to the school. For ordinary treatment and diagnosis, the reader is referred to the standard medical works.

The following list, by no means complete, of commonly observed defects will show the wide range of diseases which may be seen commonly:

Eyes. Nearsight, farsight, astigmatism, squint. Conjunctivitis (infectious); injection of the eyeball through irritation, such as chlorine, foreign body; blepharitis; traumatic injury, such as "black eye;" "bloodshot eye." Frontal or supraorbital headaches, as from hyperopia. Granulated lids, trachoma.

Ears. Earache; running ear, chronic and acute; mastoiditis in various stages; deafness, constant or sporadic; cerumen, sometimes impacted.

Nose. Running nose, as from cold, adenoids, etc.; septal spur; deviated septum; anatomically small nose functioning poorly; these last three causing blocking similar to that seen in adenoids; snuffles; nosebleeds, from such causes as trauma, atrophic rhinitis in mild stages, etc. Hay fever and asthma.

Throat. Tonsils of the blocking, or acute or chronically diseased type; nasopharyngitis; glazed catarrhal throats of the type seen in New York.

Mouth. High palatal arch; cleft palate without or with hare lip; carious or poorly erupting or badly erupted teeth; malocclusion; toothache; coated

[1] Clark, T.: A Simple Health Score for School Children, Public Health Reports, Vol. 38, No. 7, Feb. 16, 1923, pp. 285–296.

tongue; deviated tongue (nervous paralysis); thick tongue (macroglossia, glandular cases); mouth breathing.

Glands (lymphatic). Enlargements of the primary type such as Hodgkin's disease, the leukemias. Secondary enlargements depending on infection existing in their drainage area, as the enlargement of the gland at the angle of the jaw because of tonsillar infection.

Glands (endocrine). Slumps in mentality; underdeveloped sexual organs; adiposity; fatigue; nervousness and hand tremors; bony abnormalities, character traits and behavior problems; thyroid enlargement.

Skin. Communicable diseases: mumps, measles, whooping-cough, scarlet fever, diphtheria, infantile paralysis, chickenpox, german measles, smallpox. Infectious: pediculosis, impetigo, ringworm, scabies. Disfiguring and unesthetic (sometimes justifying exclusion for their psychological effect on other children): eczemas; anaphylactic reactions; acne, naevi; alopecia; chronic skin diseases of any sort in the relapse stage.

Chest defects such as: (1) Bony malformations as from rickets, or secondary to spinal defects; (2) of the lungs, such as acute and chronic bronchitis; asthma and hay fever, pneumonia, tuberculosis, empyema; (3) of the heart, such as hypertrophy, murmurs of varied importance, irregularities, especially sinus arrhythmia and extra systole; convalescent cases with temporarily weak hearts; athletic heart (if there is such a thing), valvular disease, organic and congenital types.

Abdomen and its organs. Gastro-intestinal upset, often known as acidosis; jaundice; diarrhea; laxative whose action has not been completed and which causes cramps during school hours; enlarged spleen, with or without other signs, vomiting. Appendicitis, acute and chronic. Abdominal pain without apparent cause.

Hernias. Potential or actual—umbilical, femoral, inguinal.

Orthopedic. *Back.* Structural and postural curves; scoliosis; torticollis; acute and chronic sprains and strains; fatigue or slouching posture with or without signs of malnutrition; low shoulder.

Feet. Flat, pronated, weak, strained, atrophy. Arch defects with or without symptoms. Ingrowing toe nails.

Limbs. Atrophy, limited function.

Joints. Limitation of motion, temporary or permanent; complete or partial. Peculiarities of gait.

Neurologic. Chorea, "tics," "nervous child," mannerisms, complexes, old infantile paralysis cases, various paralyses.

Nutrition. Judged by combination of signs, plus variation from normal weight; may be acute malnutrition as in convalescence or may demand thorough investigation for definite disease, as tuberculosis.

Septic conditions. Boils, abscesses, septic fingers, paronychia. Acute injuries, such as cuts, bruises, burns, dislocations, fractures, even to fractured skulls.

The school must interest itself chiefly in: (1) Discovery of signs suggesting disease; (2) showing the parent the need of further investigation; (3) care of injuries needing first aid; (4) providing suitable programs, classroom and

physical education, for children possessing temporary or permanent defects which indicate the need of such planning. These matters are covered in other chapters.

Matters of personal hygiene are cared for mostly by the classroom teacher and are largely a teaching problem with which the health service has limited contact except through health education. Markedly bad cases may demand home visits by teacher or nurse, or more drastic method.

Following is a simple statement regarding the most common defects and methods of handling by the school. No attempt is made to use a highly scientific terminology. Rather the nomenclature is intended to be intelligible to all school health workers.

Region	Disease	Common symptoms seen in school		Excludable or not	Return to school if excluded	Treatment at school if desired	Special note
		Local	General				
Abdomen.....	Acidosis.	Often means "gastro-intestinal upset."				.....	Diet.
	Gastrointestinal upset.	.....	Nausea, vomiting.	.....	When symptoms ceased.	Be sure child sees doctor.	Be sure appendicitis is not beginning.
	Diarrhoea.	A symptom.	.....	.....	.....	.....	Find and remove cause, often a saline cathartic cure.
	Cramps.	A symptom.	.....	.....	.....	.....	Often result of laxative.
	Appendicitis: (*a*) acute;	Pain, tenderness and spasm right lower quadrant.	Nausea, vomiting, constipation.			....	Have child lie down. Wait for ambulance or doctor.
	(*b*) chronic.	A distance not clearly defined.					
Accidents and acute diseases.	Bites (animal), cuts and abrasions.	Puncture with or without inflammation.	Only if septic or rabies.	.....	.....	Own doctor at once. Iodine or mercurochrome.	Clean dressing.
	Bruises.	.....	.....	.....	.....	Cold application.	Cold.
	Burns.	.....	.....	.....	.....	If severe, physicians must treat. Mild cases: 1. Caron oil; 2. Boric acid oin tment; 3. Picric acid.	
	Boils. Abscesses. Septic, fingers or toes, and paronychia.	.....	.....	.....	.....	Poultices, open. Physician only to care for case.	"Points." Dressing as needed. If a series of boils, study general health and personal hygiene.
	Dislocations and fractures.	Malposition; crepitus; in some, local tenderness.	Sometimes collapse.	.....	.....	Make comfortable. Fractured part in comfortable position where it will not move.	Physician always.

	Sprains, strains.	Local tenderness, swelling.	.....	.....	.....	Alternate heat and cold.	Immobilize if severe. Bender bandage best. Be sure fracture is not present.
Chest.....	Rickets, active or inactive.	Pigeon breast, Harrison's groove, rosary.	.....	.....	.....	.....	Sunlight, diet with proper vitamine, as cod liver oil on general principles.
	Acute and chronic bronchitis.	Rales.	.....	If acute.	Symptoms.	.....	If cough persists case needs thorough chest examination, possibly x-ray.
	Asthma, hay fever	Rales, squeaks.	Barrel chest, dyspnoea, seasonal incidence.	.....	.....	Limited exercise, program in attacks.	Investigate cause—protein tests.
	Chronic cough.	A symptom.	.....	.....	.....	Always investigate for cause.	Find cause. Suspect whooping-cough or T. B.
Ear.....	Earache—a symptom and not a disease.....			.....	Usually find cause in ear or teeth.		
	Eczema.	Outer ear.	.....	Only for aesthetic reasons.	.....	None.	Specialist.
	Furuncle.	Canal.	General health doubtful.	Only when patient suffers.	.....	None.	Specialist.
	Foreign body: 1. Object; 2. Cerumen.	Feeling of fulness, pain, inflammation. Deafness total or partial, plus wax.	Secondary only.	No No.	Removal.	Removal. Removal of wax, irrigation.	Best sent to specialist with proper apparatus. Usually not cared for at school. Refer case.
	Inflammation of drum membrane.	Redness and injection.	Usually cold or sore throat.	For benefit of patient.	Cure.	None.	Specialist.
	Middle ear: (*a*) Acute;	Sharp pain, redness of drum, discharge if ruptured, deafness.	.....	Always.	Till cured.	No,	Specialist.

Region	Disease	Common symptoms seen in school		Excludable or not	Return to school if excluded	Treatment at school if desired	Special note
		Local	General				
	(*b*) Chronic. 1. Catarrhal; 2. Purulent.	Intermittent deafness.	.....	No.	.....	.....	Requires early action and careful study for cause.
		Purulent discharge, often with odor.	Poor general health.	If odor or much discharge.	Cessation of symptoms for which excluded.	Sometimes irrigation by trained person.	Rarely treated in school and should not be, usually. Find cause.
Endocrine glands,	Hypothyroidism.	Local enlargement, largest during menses in girls.	Fatigue.	Dependes on severity of symptoms.	.....	Iodine, prophylaxis, limited exercise.	Commonly thyroid of adolescence. Usually in girls.
	Hyperthyrodism.	With or without local enlargement.	Tachycardia exophthalmos; fine tremor of hands; highly nervous, increased appetite.	Always for health of patient.	.....	None.	Rare in school children.
	Hypopituitary.	.....	Underdevelopment: 1. Skeletal; 2. Genitalia; 3. Marked adiposity; 4. Enlarged breasts.	.....	.....	.....	Froehlich's syndrome. Another type of adiposity, also endocrine in origin, exists in school girls. Origin is not pituitary apparently.
Eye							
Defects of refraction	Myopia (nearsight)	Vision of less than 20/20 by chart.	Inability to read at normal distance.	No	No	Oculist	May be latent or active; chart is Snellen, illiterate *E* or others.
	Hyperopia	Headaches, especially afternoon.	Eye-strain	No	No	Oculist	Latent or active; must not be con-

		(*a*) Frontal; (*b*) Superorbital; (*c*) Occipital.					fused with super acute vision.
	Astigmatism	1. Blurring on special astigimatic clock meridians; 2. Cf. myopia; 3. Headaches.	Eye-strain	No	No	Oculist	Usually combined with myopia or hyperopia.
Defects of muscles	Imbalance	Double vision, if severe. Headaches.	....	....	... .	Hygiene of eye	Specialist needed; maddox rod; phorometer.
	Strabismus (squint)	Crosseyes	Sometimes two images	No	No	Oculist	Very young children, prisms; others, operation.
Infectious	Conjunctivitis	Red conjunctival purulent discharge, especially morning.	.. ..	Yes	Not earlier than cessation of discharge.	Boric acid solution; 10 percent argyrol; mercurochrome.	Pink-eye most common and is epidemic; more rarely gonorrheal. Trachoma.
	Blepharitis	Granular deposit on edges of lids. Lids stick together in morning.	Usually malnutrition	No	.....	Yellow oxide of mercury.	Investigate and treat general health.
Miscellaneous	Ulcer	Area of inflammation and excavation.	... ...	.....	... ...	. .....	Find cause; specialist at once; danger to eyesight.
	Opacities	Whitish opalescent areas on eyeball.	Partial limitation of visual field.	.. ..	.....	Conservation class frequently.	Importance depends on interference with vision and size. Includes nebulae, leucomas, cataracts, pterygia.
	Injuries (*a*) Foreign body or chemical as chlorine.	Injection; pain; lachrymation; photophobia.	Headache	Till removed. Only for protection of eye.	..... About 24 hrs.	Remove Irrigation with boric acid solution.	Follow by argyrol 10 percent. Sterile oil drops.

Region	Disease	Common symptoms seen in school		Excludable or not	Return to school if excluded	Treatment at school if desired	Special note
		Local	General				
	(*b*) Trauma, ecchymosis, "black eye."	Discoloration of lids; injection of eyeball; rarely area of redness on eyeball through rupture of small vessel.	None	Only for protection of sight.	.....	Cold boric compress, 10 percent argyrol in eye.	Oculist desirable if case at all severe.
	Malposition of hairs of eyelashes (trichiasis).	Local irritation of eyeball; redness; lachrymation.	.....	.....	.....	.....	Often found inner canthus; usually missed.
	Obstruction of tear duct.	Local inflammation; lachrymation.	.....	.....	.....	.....	Always specialist.
	Granulated lids	Granules inside inflamed lower lids; lachrymation, photophobia.	Poor general health.	If severe to protect sight; or if diagnosis cannot rule out trachoma.	Cessation of symptoms	10 percent argyrol; or mercurochrome.	May be confused with trachoma.
	Trachoma	Exaggerated signs of granular lids.	.....	Always; if suspicious.	Cured completely	None; sometimes kept in a special class.	Very infectious(?); requires expert for diagnosis; common in immigrant groups.
	Ptosis.	Drooping of eyelid (upper).	.....	.....	.....	None.	A nerve disorder; can be improved by operation.
General.....	Syphilis.	Many local and general manifestations often simulating other diseases.			.....	.....	Careful study of doubtful cases.
Heart.....	Endocarditis, myocarditis.	May include: 1. Enlargement; 2. Murmurs;	May include: 1. Dyspnea; 2. Orthopnea;	If decompensated.	Physician's advice.	Special privileges. A special class. Murmurs alone	Includes congenital and organic heart disease.

		3. Thrills; 4. Irregularity in rate.	3. Edema of dependent parts; 4. Enlargement, to left or in length.			mean little.	Diagnosis and prognosis require careful study.
	Variations in rate: 1. Sinus. Arrhythmia.	Occasional irregularity with return to normal rate.	Usually none.	.....	.....	None.	Usually of no importance. Frequent in children. Electrocardiograph in doubtful cases.
	2. Tachycardia;	Rapid rate.	.....	.....	....	Take pulse on many occasions to determine permanent heart disease.	Often temporary and due to nervousness. Some children are apparently normal even with rate fast. Study thyroid Electrocardiograph.
	3. Extra systole.	Dropped beat with compensation in rhythm.	Usually none.				Electrocardiograph.
	Diarrhoea.	A symptom.					
	Cramps.	A symptom.					
Hernias	Inguinal direct.	Mass and impulse at internal ring.	.....	.....	.....	If acute have patient lie on back till he can be taken to home or to hospital.	Urge operation.
	Indirect.	Mass and impulse along canal or in scrotum.	.....	.....	.....	If chronic.	Urge operation.
	Potential.	Large rings.	.....	.....	.....	Suit physical activities to degree of hernia.	May develop into hernia. Urge operation.
	Femoral Umbilical.	Mass, impulse local pain or soreness.	None, unless strangulated.	Only if acute.	.....	Limited physical activities as far as degree of hernia indicates.	Operation should be considered.
	Ventral.	Mass and impulse abdominal.	.....	.....	....	.....	Usually at site of operation; scar.

Region	Disease	Common symptoms seen in school		Excludable or not	Return to school if excluded	Treatment at school if desired	Special note
		Local	General				
Lymphatic glands...	Primary enlargement.	.....	Usually general.	.....	.....	.....	Usually Hodgkin's disease or leukemia.
	Secondary enlargement.	In drainage area: 1. Teeth; 2. Tonsils; 3. Local infection; 4. T. B.	.....	.....	.....	.....	Find and remove cause, if large. 1. Teeth, along rims of jaw; 2. Tonsil, at angle of jaw. 3. Pediculosis, occipital and at angle of jaw; 4. T. B. in front of sterno-mastoid.
Mouth ..... General and special	Cleft palate.	Opening on hard or soft palate or both.	Nasal voice, sometimes food is regurgitated through nose (usually only in very young children).	.....	.....	None.	With or without harelip; operation.
	Bifid uvula.	Double hanging palate.	.....	.....	.....	.....	Congenital.
	High palatal arch	—a symptom.					Usually result of adenoids.
	Mouth breathing —a symptom.	.....	.....	.....	.....	.....	Usually from adenoids or deviated septum with blocking.
	Rhagades.	Erosion and cracks corners of lips.	.....	.....	.....	Refer.	Find cause. Wassermann test.

	Stomatitis.	Erosion about mouth.	Malnutrition.	.....	.....	.....	Often severe; may require hospital treatment.
Teeth.....	Caries (cavities).	Dark spot or definite cavity.	Marked cases caused by malnutrition.	.....	.....	Dentist: 1. Filling: (*a*) temporary. (*b*) permanent.	Diet: Dental hygiene.
	Irregularity.	Malposition of teeth.	May influence formation of dental arch and shape of face.	.....	.....	Sometimes extraction of first teeth in dental clinic at proper time.	Orthodontia needed.
	Alveolar abscess.	Swelling of cheek; local tenderness when tooth is touched; toothache.	Usual signs of septic process.	Because needs immediate treatment.	.....	Sometimes drainage by dentist.	Always should be seen by dentist.
	Unclean teeth.	Discoloration deposits of food, etc.	Sometimes foul breath.	No.	No.	Clean teeth.	Encourage use of toothbrush.
	Pyorrhea.	Bleeding of gums; deposit and inflammation at border of gum and tooth; shrinkage of gums; loosening of teeth; discharge of pus.	.....	Only for very foul breath.	.....	Dentist always.	Requires a long, careful expert course of treatment.
	Toothache.	Pain; local tenderderness.	.....	Because of discomfort to child.	.....	Examination by dentist for cause.	Treat cause.
Tongue	Coated.	Whitish covering.	Foul breath.	.....	.....	.....	Often result of constipation; shows after drinking milk.
	Thick.	Large, thick tongue.	.....	.....	.....	.....	Macroglossia or pituitary case.
	Geographical.	Fissured tongue.	.....	.....	.....	.....	A curiosity.
	Tongue-tie.	Speech defect.	.....	.....	.....	Speech training after operation.	Operation.

Region	Disease	Common symptoms seen in school		Excludable or not	Return to school if excluded	Treatment at school if desired	Special note
		Local	General				
Nervous system	Nervous weakness.	A symptom					Invesigation for cause.
	Chorea.	Twitchings of face.	Nervousness, inability to keep still. Sometimes infection of heart.	Often part of treatment.	Return of nervous stability.	None.	Exclude; heart needs definite medical attention.
	Mental deficiency.	See special chapter.	Retardation; class-room behavior.	.....	.....	Special class after study.	Be sure no physical defect exists which gives false impression, *e.g.*, deafness.
	Behaviorisms, mannerisms, complexes, nervousness, "tics."	See chapter on mental hygiene.					
Nose.....	Discharge—a symptom, not a disease.	.....		.....	.....	None.	Specialist.
	Obstruction:						
	1. Basal spur;	Local spur, blocking.	Usually.	.....	.....	None.	Associated with basal spur frequently. Operation delayed.
	2. Deviated septum;	Local, plus blocking.					
	3. Foreign body.	Body in nose.	Blocking, sometimes mouth breathing.	.....	.....	Removal if easily done.	Removal by skilled physician best. Otherwise foreign body may be pushed further into nose.
	Epistaxis (nosebleed).	Bleeding from area of erosion at genital point; result of trauma.	Collapse, if severe and continued.	.....	.....	Cold to back of neck.	Call physician if persists over half an hour or if very severe.

Feet.....	Flat.	Longitudinal arch down.	Pains up legs.	.....	.....	Exercises—lift on inner side heels.	Demands careful and continued exercising.
	Fallen anterior arch.	Corn on plantar surface of foot at arch.	Pain along sides of tibia in front.	.....	.....	Picking up marbles with toes.	Exercises sometimes. Special padding to raise arch.
Posture.....	Stoop shoulders.	Exaggerated thoracic curve. Hanging head.	.....	.....	Simple posture, exercises.	.....	May be associated with sagging abdomen and flat chest.
(Examinations not satisfactory unless clothing can be removed.)	Low shoulder, fatigue or shoulder abdomen type of posture.	One shoulder low. Round shoulder, hanging head, flat chest, lagging abdomen.	May result in lateral back curve. Malnutrition.	.....	.....	Hanging exercise.	Hanging by ring or bar. Carry books under other arm.
	Antero-position curves: 1. Functional;	Local curve.	Spine flexible.	Curve may be general or local; if local, it may be forward or backward and is called lordosis or kyphosis.	.....	Rest on bed-pillow, between shoulders.	Often accompanied by gastrointestinal symptoms and other symptoms due to ptosis or malposition of organs of chest and abdomen.
	2. Structural;	Local curve.	Local stiffness of spine.				
	Scoliosis, above lateral curves plus rotation, always specialist.					Posture, corrective exercise in mild cases, otherwise specialist.	Avoid over exercise Admits remedy. Often difficult to cure. May be improved.
Orthopedic.....	Torticollis (wry neck).	Muscle spasm (sterno-mastoid) head twisted to side.	Sometimes eye-strain.	.....	.....	Usually none.	May require operation for improvement. Congenital defect.
	Paralyses.	Loss of function of part in total or partially.	Compensatory changes due to throwing extra burden on other organs.	.....	.....	None, unless cooperating with physician. Adjustment of rest as needed.	May be congenital or result of poliomyelitis. Spinal lesions, or nerve lesions.

Region	Disease	Common symptoms seen in school		Excludable or not	Return to school if excluded	Treatment at school if desired	Special note
		Local	General				
	Atrophy.	Usually of limb. Limb smaller than normal.	.....	.....	.....	.....	Usually associated with paralysis.
	Joint.	Limitation of motion, malformation of joint.	.....	.....	.....	Exercise only with consent and advice of physician.	Determine cause. Study case by *X*-ray.
Skin.	Contagious diseases.	Covered in chapter on contagious diseases.					
	Acne.	Small pustules	.....	No	.....	Personal hygiene.	Disease of adolescence *X*-ray most hopeful treatment (Fox).
	Alopecia areata.	Patches of baldness.	.....	No.	.....	Permit child to wear skull cap.	No satisfactory treatment.
	Ringworm of scalp.	Patches of baldness; broken hairs; hair stumps; prominent follicles.	.....	If active, as shown by hyperemia or increasing size of bald areas.	When definitely cured, is shown by inactivity; case should be examined every month the rest of the school year, at least.	Should not be attempted.	Microscope shows fungus in scrapings of border of patch. Rarely occurs in adults or after 14–15 yrs. Conveyed by contact or fomites.
	Angiomas.	Redness of varying shades, sometimes post-wine tumor.	.....	No	.....	None.	Radium or CO_2 often remove, if size is small enough.
	Corns and callouses on feet.	Tumor tenderness.	.....	No	.....	Proper shoes remove pressure.	Excision or removal by salicylic acid collodion. Pain if pressure is not removed.

Skin, Con.....	Dandruff.....	Itching, scaling of scale; fine scales in hair; scalp dry or oily.	.....	No	.....	Personal hygiene.	Requires careful treatment. Only in adults and adolescents.
	Eczemas, dry.	Redness, hyperemia, thickening infiltration crusting, cracking.	Papules, vesicles, pustules, none.	Only for aesthetic reasons in rare cases.	.....	Remove cause if discovered; consider soaps, exposure to weather or chemical causes.	Require thorough study for possible irritative etiology.
	Moist.	Above, plus marked exudate.	.....	Only for aesthetic reasons in rare cases.	.....	.....	Require thorough study for possible irritative etiology.
	Dermatitis medicamentosa.	Eruption or rash, type depending on drug.	.....	Till diagnosis confirmed only.			
	Dermatitis, venenata, poison ivy, or oak.	Vesicular crusted erythematous exudative eruption. Itches at points of contact in exposed points of the body.	.....	At least in exudative stage.	If lesions are dry and covered.	Teach preventive method of soap and water followed by alcohol at once, if suspects he has touched poison ivy.	Non-infectious. Permit school attendance.
	Food rashes.	.....	.....	Till diagnosis.	.....	.....	Food cause as by protein tests.
	Others.	.....	.....	Till diagnosis confirmed.	.....	.....	Other types are characteristic, depending on etiology and need not be described here.
	Favus, scalp.	Inflammation, fine scales, yellow points at hair outlets; scutula (disks pierced by hair), yellow crusts, odor of stale musty straw.	A disease of the poor, ill-fed, and uncared for, who have lowered resistance.	Yes, contagious.	Cure.	None.	Occasional attacks; slow onset. Vegetable parasite. Usually in immigrant group. Intractable. *X*-ray helps.

Region	Disease	Common symptoms seen in school		Excludable or not	Return to school if excluded	Treatment at school if desired	Special note
		Local	General				
Skin, Con.....	Furuncles (boils).	Redness, swelling, hyperemia, "pointing."	Those of general infection, depending on severity.	Only for patient's good.	When pupil is physically able.	Personal hygiene, local cleanliness, force fluids.	Often occurs in highly trained athletes.
	Herpes, "cold-sores."	Vesicle, later crusting.	.....	Unless impetigo is suspected or cold is in communicable stage.	.....	None.	Sometimes confused with impetigo. Otherwise harmless. Usually occur late in cold.
	Ichthyosis.	Scaling of skin, dry, branny of upper arms, thighs and over ribs. Keratosis pilaris; worse in cold weather.	Seen in school of younger children, where whole skin is like fish scales.	No	.....	None.	Congenital and inherited deformity of the skin rather than a disease.
	Impetigo.	Face; scalp; mouth; lips especially.	Poor general physical condition; sometimes pediculosis of scalp precedes.	Yes, very contagious.	When completely dry and gone; crusts.	Ammoniated mercury ointment; tincture of iodine after crusts are removed; thorough scrubbing with soap and water and disinfection of brush; the local applications.	Becomes a serious problem unless cases are carefully excluded till cured.
	Keratosis pilaris.	See ichthyosis.					
	Moles.	Tumor with or without hairs, color brown or black.	No	No	.....	None.	See angiomas.

Skin, Con.....	Pediculosis.	Itching; pediculi; "nits," eggs which are attached to hair.	May get secondary infection of scalp and impetigo.	Always if pediculi present; better if cases with nits are excluded also.	When no pediculi, preferably not till nits are gone.	See slip on page 114. Personal and family hygiene. School nurse may visit home and demonstrate shampoo. "Derbac" shampoo.	The greatest problem in the average school. Many families are chronic offenders, especially immigrant group.
	Psoriasis.	Sluggish inflammation; white dry scales; patches round and well defined; appears where skin circulation is poorest as elbows, knees, scalp, backs of forearms, trunk.	Nervous, poorly nourished children of the better class.	No, unless for aesthetic reasons.	.....	Health habits. Removal of nervous strain.	Most common in adults.
	Ringworm.	Circle of redness; healing of center and advancing at periphery.	.....	Yes, contagious.	When lesions have gone.	Tincture of iodine; ammoniated mercury; see slip on page 114.	A fungus disease; usually on face; a special type found in athletes with dirty athletic outfits.
	Scabies.	Burrows and itching between fingers in web; marked itching especially in night.	Linear scratch marks on body.	Yes, very contagious.	Complete cure and wounds healed.	See slip on page 115.	Requires carefully carried out routine for rapid cure.
	Sensitizations, hives (urticaria), hay fever, asthma, food rashes, drug rashes.	Erythema, wheals, itching, hay fever symptoms, curious rashes, usually fine.	Malaise to prostration. Sometimes gastro-intestinal symptoms.	Only till diagnosis is sure.	.....	None. In giving any inoculations, the matter of sensitization must be studied carefully in the case of each	Search for cause; remove from diet or neighborhood, or teach patient to avoid it. Cathartic useful in mild cases.

Region	Disease	Common symptoms seen in school		Excludable or not	Return to school if excluded	Treatment at school if desired	Special note
		Local	General				
Skin, Con.....						child. Be sure to inquire about sensitization to horse serum.	(Epsom salts best.) Adrenalin for hay fever type. Protein sensitization tests. Desensitize when necessary to give sera.
	Vitiligo, leukoderma.	Patches of discoloration of skin, usually brown in colored race; spots are oval circumscribed, smooth, milky, white.	None.	No	.....	None.	May be "Giant" or simple type. Interesting local lack or loss of skin pigment. The reverse of cholasma, which is increased, pigmentation in patches.
	Warts.	Tumor with smooth or irregular surface; sometimes occurs singly or in lines, usually on hands or plantar surface of foot.	.....	No	.....	Burning nitric acid.	Salicylic acid collodions. Fulguration or radium best.
Throat.....	.....	.....	.....	.....	.....	Advise further investigation.	Usually operation.
Tonsils.....	Blocking.	Size blocks airway.	Malnutrition.	.....	.....	.....	Often with large adenoids.

Diseased.	Irregular surface, crypts full of detritus.	Enlarged cervical glands at angle of jaw; malnutrition.	.....	.....	.....	Often accompanied by adenoids. Toxic focus.
Nasopharyngitis.	Glazed naso-pharynx; post-nasal discharge; membrane inflamed.	.....	.....	.....	If acute, 10 percent argyrol in nose; Dobell's gargle.	Common in New York and New England.
Hoarseness—a symptom.						If chronic, consider 1. T. B.; 2. Vocal cords; Paralysis from pressure on recurrent laryngeal nerve.

CHAPTER XI

SPECIAL CLASSES

Today the school attempts (1) to discover early, any unusual children among its pupils; (2) to provide such children with the type of instruction and guidance most suitable for their peculiar abilities or deficiencies in order that such children may attain the best development and become economic and social assets of the community if possible.

As a result of this endeavor to permit every child to develop physically and mentally to the limit of his powers, there have been formed in the schools special groups of children of similar ability or similar mental or physical deficiency. Such groups are termed "Special Classes." The most common are (1) Classes for the non-institutional mentally incompetent of various types, and degrees; (2) The Fresh-air Classes; (3) Conservation of vision or Eyesight Classes. Less general are the classes for the deaf, the crippled, the cardiacs, the blind, the epileptics, and others.

Ayer's study of Promotional Plans[1] showed the following comparative frequency of such special classes in 124 cities studied in a group distributed as below:

Sections	Number of cities in group				Total number cities
	Over 100,000	25,000 to 100,000	5,000 to 25,000	2,000 to 5,000	
New England	2	4	6	3	15
Middle Atlantic	9	5	7	5	26
North Central	12	13	10	7	42
South	3	2	5	2	12
West	6	6	10	7	29
Total cities	32	30	38	24	124

STATUS OF ALL TYPES OF PROMOTIONAL PLANS ACCORDING TO FREQUENCY OF APPEARANCE

Rank	Plan	Cities	Percent
3	Classes for subnormal	79	63.7
17	Open-air classes	28	22.6
18–19	Speech-defects class	27	21.7
18–19	Classes for deaf	27	21.7
22–23	Classes for cripples	18	14.5
25–27	Classes for blind	15	12
33–35	Classes for epileptics	4	3.2

[1] Ayer, F.: Questionnaire to a Selected Group of City School Superintendents, American School Board Journal, April, 1923.

PERCENTAGE DISTRIBUTION

Plan	Percent in		Group III 5,000 to 25,000	Group IV 2,000 to 5,000
	Group I over 100,000	Group II 25,000 to 100,000		
Subnormal classes	100.	70.	47.3	33.3
Open-air classes	78.1	30.	10.5	0.0
Speech defects classes	56.2	20.	5.2	4.1
Classes for deaf	65.6	20.	0.0	0.0
Classes for cripples	46.8	3.3	5.2	0.0
Classes for blind	43.7	3.3	0.0	0.0
Classes for epileptics	12.0	0.0	0.0	0.0

REGIONAL DISTRIBUTION OF PROMOTION PLANS IN PERCENTAGES OF FREQUENCY

Plans	Mid-Atlantic cities	North Central cities	Western cities	North Eastern cities	Southern cities
Classes for subnormal	88	69	38	74	42
Open air classes	46	36	17	20	25
Speech defects classes	19	31	21	7	17
Classes for deaf	35	24	28	0	0
Classes for cripples	31	24	0	0	0
Classes for blind	12	20	7	7	0
Classes for epileptics	4	5	3	0	0

Two opinions regarding special classes exist:

1. That they are highly desirable because (*a*) they afford an opportunity for the handicapped child to learn to the limit of his ability, under the favorable environment with special equipment and specially trained teachers; (*b*) the lack of contact and competition with normal children makes the handicap less evident to the child since he does not suffer from contrast with the normal child, in school at least; (*c*) the special class child will rarely lead a strictly normal life according to the standards for normal children and will probably be unable in any case to compete fully with normal persons.

2. That, in some types of classes at least (such as the Eye-sight Conservation Groups), the segregation policy is unwise (*a*) because the child will not be segregated in life after leaving school; (*b*) because segregation creates a feeling of social or economic inferiority, of being unlike other children, of being "peculiar;" (*c*) because special privileges may be granted by the school which will offset any advantages of the special class; (*d*) because the comparatively small number of eligible children makes a large per capita expense for special transportation facilities, or if such facilities are not provided, some person must accompany the child on long trips to and from home and the central special class. This non-segregation policy is being adopted in cardiacs at present.

Which policy is better, depends on local, school, and community conditions, and decisions must be made on the basis of what plan will give the best results under the facilities which the community can provide. The value of segregation of the mentally deficient group is unquestioned.

All these classes require the unusual teacher—unusual in personality, patience, love of her speciality, in training, in skill. Poor teachers may be permissible in regular class rooms but never in special classes.

MENTAL TESTS

The so-called "mental tests" are a comparatively recent addition to psychology and psychiatry. Like other laboratory tests, they represent an important factor in a complete diagnosis, but nevertheless only one factor. Certain types of tests require expert interpretation before the results may be considered reliable. The most extensive and successful use to date of the mental tests has been in connection with mental defectives, although, through the increasing variety of types of tests a much larger field is being covered satisfactorily.

Historically, mental testing began with Sir Francis Galton through his creating an imaginary scale for human ability. In 1904, Binet, confronted with the need for organizing classes for feebleminded children in the Paris public schools, urged three types of examinations: (1) educational, (2) medical, (3) psychological, and devised a scale intended to distinguish between those who are capable of doing good school work but are nevertheless backward, and those who are backward because of mental subnormality. Terman devised the Stanford modification of the Binet-Simon test which is now used in this country. Other modifications of the scale type were by Herring, Kuhlmann and others. Yerkes, Bridges and Hardwick created the Point Scale modifications of the Binet tests, their rating being made by (1) a scoring method for each test and (2) a total score instead of the "all or none" and age grouping of the Binet test.

In group testing the pioneer work was done by Thorndike and his associates, beginning in 1903. Such work received an impetus through the necessity, in the World War, of placing recruits in suitable tasks. A tremendous amount of human material was available and the result of the studies was the development of the Alpha (for literate persons) and Beta (for those who could not read) Army tests on which most of the present group tests are based. Otis, Thorndike, Rugg, and others made outstanding contributions to the field during this period. The Army tests were not wholly satisfactory as a method of estimating the best type of army service for recruits.

Since the war the number of intelligence tests has increased greatly and for this reason only a few representative tests will be discussed. Certain general principles prevail in mental testing and these will be briefly described.

In general the tests are divided into two classes—the individual and the group tests. Two important uses are made of them: (1) to determine whether an individual possesses the average or a special relation mentally to the normal average individual of the given age; (2) to determine any

special aptitudes or deficiencies, that the child's career may be chosen on lines most likely to be successful.

Group tests. The specific purposes of the group tests are (1) to study the accuracy of grading and placement in a school, and measuring progress, when pupils are placed; (2) for use in educational guidance, and therefore vocational guidance; (3) for classification and comparison of "pupil material;" (4) for providing definite standards of attainment.

Pressey[1] believes the purposes of the individual tests of ability are (1) to study children at the extremes of ability—the unusually dull or unusually bright, to verify the results of group examining; (2) to analyze the difficulties of emotionally unstable or temperamentally peculiar children; (3) to deal with cases to whom group tests can not be given—as very young children, children unfamiliar with English, or children suffering from some special handicap.

These tests are also grouped as Intelligence Tests, Achievement Tests, Character Tests, Prognosis Tests, Practice Tests. The Intelligence Tests like the Stanford or Otis are for the purpose of determining the general intelligence and not the achievement of the individual. If this is remembered little confusion will exist between the two types. The Achievement Tests like the Haggerty tests, may be compared with the older so-called "examination" while the intelligence test is more a study of the mental tools the individual has to work with. These tests are also known as "accomplishment tests" or "subject tests."

Character tests are used to measure various character traits of the individual. Examples are the Downey Will Temperament Test, the Allport Tests, the Hart Test of Social Attitudes and Interests, the Liao Moral Judgment Test.

Prognosis tests are given to secure an estimate of the success a child may be expected to attain in certain work, as by the Wilkins Prognosis Test in modern languages. This type of test is being developed to assist employment managers in determining the fitness of applicants.

Practice tests furnish a method of standardized drill in a subject. An example is the Courtis Standard Practice Tests in Arithmetic.

As noted previously, intelligence tests are of the group and individual types. The following are examples of types of group tests: (*a*) Tests for special knowledge or achievement, as in the Stenquist Tests for Mechanical Aptitude. Here no grading is considered. Comparison is made with the mechanical aptitude of individuals of the same sex and age. The study has not yet been extended to girls. The tests are not trade tests, but are used to select pupils who have general aptitude which may be developed into any of several mechanical trades. The findings of the test must be considered as only one part of the child's characteristics.

(*b*) Examinations for grouping pupils according to their ability and for measurement of progress in learning. For example, the Haggerty Reading examination consists of three tests or Sigmas: (1) For the first, second and third grades; (2) grades three to eight; (3) grades six to twelve. This type of

[1] Pressey, L. C.: Introduction to the Use of Standard Tests, p. 152, World Book Co., 1922.

test is used chiefly to determine promotions in different subjects or to determine the efficiency of the teacher.

(*c*) The Otis Self-administering Tests of Mental Ability represent a successful attempt to eliminate the personal equation of the examiner. These tests consist of an Intermediate Examination for Grades five to nine and the Higher Examination for Grades nine to twelve and college students. The Intermediate and Higher Examinations cover the same range of grades as is covered by the Advanced Examination of the Otis Intelligence Scales (described later) and are therefore alternatives for, or additions to, the Advanced Examination. In the self-administering tests it is only necessary to lay the examination folder before the persons examined with instructions to read the first page.

(*d*) The Otis Group Intelligence Scale, developed in 1915, followed the Army plan. At present it claims to permit the teacher or other examiner to measure the native mental ability of pupils in groups, scientifically, rapidly, and accurately for the purposes of: (1) Classification in regard to native capacities to learn, in order to provide for the separate teaching of the bright, average, and backward; (2) the discovery of the feeble-minded who should be placed in special institutions; (3) selection of the vocation (profession, trade or labor) in which the degree of mentality indicates the highest possibility of success; (4) determination of cases of possible delinquency and the proper treatment of some persons who have committed criminal acts.

It consists of a Primary Examination, in two forms, adapted to pupils in grades one to four and the advanced Examination for use in grade five and through High School, and is said to be satisfactory with college students. These examinations may be administered as individual examinations in desired cases. The fact that two alternative tests are available for each group permits re-examination at an early interval if desired.

Re-examination individually is desirable in marked variations, and if the findings are again similar the results must be considered conclusive. This procedure is especially necessary when the results of the examination are not in accord with the quality of the pupil's school work or other known facts regarding his mentality. Variations may be due to nervousness, temporary confusion or lapse of attention. In administering this type of test, the examiner (usually the teacher) has printed directions which she reads,—in this way eliminating the human element.

In scoring, with exception of certain special questions, the score consists of the total number of right responses. Special means of rapid scoring are provided in the advanced examination. The apparent intent of the pupil is scored, regardless of crudeness of drawing, where drawing is used; the example in the direction being that anything resembling a tail attached to the proper drawing of a cat is counted correct.

The results are interpreted according to the child's mental maturity, that is, degree of mental development; and brightness, that is, comparison of his own mental maturity and that of his own age. Mental maturity is measured by the pupil's score in the scale. (In the Binet Scale, Mental Maturity is measured in terms of Mental Age.) Brightness is measured in terms of the

amount by which a child's Mental Maturity exceeds or falls short of the norm for his age. Intelligence, while often used to mean either of the above terms, should actually refer to Mental Maturity.

Deviation from the norm is noted by so many points of Increment or Decrement of score as compared with the norm for the given age.

Index of Brightness (IB) is found by adding to one hundred (Normality) the number of points by which his score exceeds the norm for his age or subtraction when the score falls below the age-norm.

The Percentile Rank (PR) ranges from zero to one hundred, fifty being exact normality. If a child exceeds just fifty percent of the children of his age in Intelligence he is said to have a PR of 50, etc. The PR is the universal measure of Brightness, equally appropriate on all scales. A table of norms is provided with the tests.

This test bears a definite relation to the Binet Scale. However, the Intelligence Quotient (IQ) or the Mental Age divided by the Chronological age is not comparable in the two tests. When such a comparison is desired, if the Advanced Examination has been given, one divides the pupil's Increment of Score by three and adds it to one hundred or subtracts from one hundred as the case may be. In the Primary Examination, this formula is used —Binet multiplied by IQ equals one hundred plus or minus four-fifths (Deviation from Norm).

A special table is provided to find the Binet Mental Age corresponding to the Otis Mental Age. The Binet Mental Age in the upper range is only called such for consistency since it is not the normal measure of mental maturity.

(*e*) Otis has also provided a General Intelligence Examination designed for business institutions.

(*f*) The Thorndike intelligence examination consists of a battery of five tests and is said to be the most thorough and extensive intelligence test yet devised. It requires two hours and forty minutes working time and is difficult to score.

(*g*) Other tests of value and importance covering the same field are the National Intelligence Tests devised by Thorndike, Haggerty, Terman, Whipple and Yerkes; the Terman Group Test of Mental Ability; the Pintner Survey Tests; the Pintner-Cunningham Primary Tests. Space does not permit mention of many other excellent tests.

(*h*) Non-language tests, such as the Pintner and the Thorndike non-language tests are used for testing illiterates.

In all of these group tests the examination papers are passed out and the persons examined told to study certain examples. Following this, they begin the paper at a given time and cease at the word. The examiner simply acts as a time-keeper, or possibly reads directions from a printed form or dictation from her printed directions. In no way except through her voice can she deviate from the classical test. Afterwards she marks the papers from a key, scoring them on the basis of right or wrong. Hence her work is largely of a clerical nature and does not involve interpretation. The teacher usually acts as examiner in the group tests.

The group tests, then, have one of two purposes, either to record achievement or general intelligence. The alternate forms permit retesting when this is desirable because other facts do not coördinate with the test scoring. Finally from these group tests there will be found certain lower scorers, usually retarded, who need further examination of a more expert and individual sort.

The **individual tests** on the other hand, unless the self-administering test is used, require very different sort of understanding and are given only by the trained psychologist. To the child they seem merely pleasant conversation with a friendly person. Of these the Binet is the classical form. In the United States the Stanford modification of the Binet is used instead of the original Binet since the latter was not suited to American groups.

Customarily the individual tests are given to gifted or to submental children. Following is the Record Sheet Stanford Revision of the Binet-Simon Tests. For the technic of the test the reader is referred to the works of the deviser (Terman).

RECORD SHEET FOR THE
Stanford Revision of the Binet-Simon Tests

Chron. age
Mental age
I. Q.

Name — Born — Admitted — Date of Examination — Time — Examiner

General observations regarding behavior during test.

SUMMARY

yrs.	mos.	yrs.	mos.	yrs.	mos.
3		7		12	
4		8		14	
5		9		16	
6		10		18	
			Total		

Age: Three Months

1. Carrying hands or object to mouth.
   (*a*) To suck finger.
   (*b*) Small block in right and left hands.
2. Reactions to sudden start. Telegraph key or hand clap.
3. Binocular co-ordination; lighted candle. Side to side, up and down.
4. Turning eyes towards light in marginal field of vision. Light brought to side from rear.
5. Winking to an object threatening the eyes. Faint blow with large object near eyes.

Age: Six Months

1. (*a*) Balancing head. Is head balanced when subject is in vertical position?
   (*b*) Sitting. Indefinitely when supported; momentarily when not supported.
2. Turning head toward source of sound. Bell or voice.
3. Opposing thumb in grasping. Try to raise thumb when Subject is grasping small block or pencil.
4. Prolonged holding of objects placed in hand. Inch ball or cube.
5. Reaching for seen objects. Ball, hand-bell.

Age: One Year

1. Sitting and standing. On stool without back, standing on floor away from support.
2. Speech. (*a*) Spontaneous vocalization, (*b*) repeats or tries to imitate syllables of ba, dada, nan, mama, papa, man.
3. Imitation of movements. (*a*) Shake and then give rattle, (*b*) hand-bell, (*c*) nod head, shake head, pursing lips.
4. Marking with pencil. (*a*) With instruction, (*b*) without.
5. Recognition of objects. Present known object, changing hand held in.

Age: Two Years

1. Distinguishes candy from wood.
2. Pointing out objects in picture.
3. Imitation of simple movements. (*a*) Raise arms; (*b*) clap hands; (*c*) palms on head; (*d*) turn hands about each other.
4. Obeying simple commands. (*a*) Go and bring ball; (*b*) Throw ball; (*c*) Place it here.
5. Copying circle.
6. Removal of wrapping of food before eating.

FIG. 144(A). Front page 8″ × 11″. The test record is a form page folder. The different portions of this form are all designated Fig. 144, each page being given a distinguishing letter, such as "A."

AGE: THREE YEARS

1. Points to nose, eyes, mouth, hair (3 of 4).
2. Names familiar objects (3 of 5): key, penny, closed knife, watch, pencil.
3. Pictures (at least 3 objects in one picture): Dutch home, canoe, post-office.
4. Gives sex.
5. Gives last name.
6. Repeats (1 of 3): (*a*) I have a little dog; (*b*) The dog runs after the cat; (*c*) In summer the sun is hot.

Alt. Repeats (1 of 3): 641, 352, 837.

AGE: FOUR YEARS

1. Compares lines (3 of 3) or (5 of 6).
2. Discrimination of forms: circle, square, triangle
3. Counts four pennies. (No error)
4. Copies square. (Pencil, 1 of 3)
5. Comprehension (2 of 3). What must you do:
   (*a*) When you are sleepy?
   (*b*) When you are cold?
   (*c*) When you are hungry?
6. Repeats 4 digits (1 of 3): 4739, 2854, 7261.

Alt. Repeats: (*a*) The boy's name is John. He is a very good boy.
(*b*) When the train passes you will hear the whistle blow.
(*c*) We aregoing tohave a good time in the country.

AGE: FIVE YEARS

1. Comparison of weights: 3–15, 15–3, 3–15.
2. Colors (no error): Red, yellow, blue, preen
3. Æsthetic comparison: Upper pair, middle, lower.
4. Definitions (use or better, 4 of 6). Chair, horse, fork, doll, pencil, table.
5. Patience (2 of 3. 1 minute each).
6. Three commissions: key, box, door.

Alt. Age.

AGE: SIX YEARS

1. Right and left: R. hand, L. ear, R. eye.
2. Mutilated pictures (3 of 4): eye, mouth, nose, arms.
3. Counts 13 pennies (1 of 2).
4. Comprehension (2 of 3): What is the thing to do:
   (*a*) If it is raining when you start for school?
   (*b*) If you find that your house is on fire?
   (*c*) If you are going some place and miss your car?
5. Coins (3 of 4): nickel, penny, quarter, dime.
6. Repeat: (*a*) We are having a fine time. We found a little mouse in the trap.
   (*b*) Walter had a fine time on his vacation. He went fishing every day.
   (*c*) We will go out for a long walk. Please give me my pretty straw hat.

Alt. Morning or afternoon.

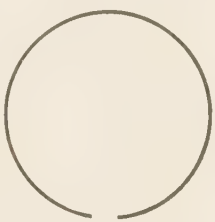


FIG. 144(B). Left middle page.

AGE: SEVEN YEARS

1. Fingers: R. , L. , both.
2. Pictures (one-half of performance description).
3. Repeats 5 digits (1 of 3): 31759, 42835, 98176.
4. Ties bow knot: time , method .
5. Gives differences: fly and butterfly; stone and egg; wood and glass.
6. Copies diamond.

Alt. 1. Names days of week.
Alt. 2. Repeats backwards (1 of 3): 283, 427, 958.

AGE: EIGHT YEARS

1. Ball and field. (Inferior or better.)
2. Counts 20–0; time , errors .
3. Comprehension (2 of 3): What is the thing to do: (*a*) Broken something? (*b*) Danger of being tardy? (*c*) Playmate hits you?
4. Similarities (2 of 4): wood and coal; apple and peach; iron and silver; ship and automobile.
5. Definitions (superior to use. 2 of 4): Balloon, tiger, football, soldier.
6. Vocabulary, 20 words.

Alt. 1. Six coins: .05, 01, .25, 10, 1.00, 50.
Alt. 2. Dictation: Time , score

AGE: NINE YEARS

1. Date: day of week , month , day of month , year
2. Weights: 3, 6, 9, 12, 15.
3. Makes change: 10-4, 15–12, 25–4.
4. Repeats backwards: 6528, 4937, 8629.
5. Three words: (*a*) Boy, river, ball; (*b*) Work, money, men; (*c*) Desert, rivers, lakes.
6. Rhymes: day , mill spring

Alt. 1. Names the months (15 seconds).
Alt. 2. Stamps: Gives total value.

AGE: TEN YEARS

1. Vocabulary· 30 words.
2. Absurdities (4 of 5): (*a*), (*b*), (*c*), (*d*), (*e*).
3. Copies designs.
4. Reading and report , memories , time , mistakes
5. Comprehension (2 of 3)· (*a*) (opinion about person), (*b*), (*c*).
6. 60 words (score half minutes).

Alt. 1. Repeats 6 digits: 374859, 521746.
Alt. 2. Repeats 20–22 syllables.
Alt. 3. Form Board, Healy-Fernald: time , method

FIG. 144(C). Right middle page.

AGE: TWELVE YEARS

1. Vocabulary: 40 words.
2. Abstract words (3 of 5): Pity, revenge, charity, envy, justice.
3. Ball and field (superior).
4. Dissected sentences (2 of 3).
5. Fables: (*a*) Hercules and wagoners; (*b*) Maid and eggs; (*c*) Fox and crow; (*d*) Farmer and stork; (*e*) Miller, son and donkey.
6. Repeats 5 digits backwards: 31879, 69482, 52961.
7. Pictures, interpretation (3 of 4).
8. Similarities (3 of 5): (*a*) Snake, cow, sparrow; (*b*) Book, teacher, newspaper; (*c*) Wool, cotton, leather; (*d*) Knife-blade, penny, piece of wire; (*e*) Rose, potato, tree.

AGE: FOURTEEN YEARS

1. Vocabulary: 50 words.
2. Induction test.
3. President and King (2 of 3): Power, accession, tenure.
4. Problems of fact: (2 of 3).
5. Arithmetical reasoning: (2 of 3).
6. Clock (2 of 3): 6:22, 8:10, 2:46.

Alt. Repeats 7 digits: 2183439, 9728475.

AGE: SIXTEEN YEARS (Average Adult)

1. Vocabulary: 65 words.
2. Interpretation of fables.
3. Difference between abstract words (3 of 4).
4. Problem of enclosed boxes (3 of 4).
5. Repeats 6 digits backwards: 471952, 583294, 752638.
6. Code: writes "Come quickly."

Alt. 1. Repeats 28 syllables: (*a*), (*b*).
Alt. 2. Comprehension of physical relations: (*a*) Path of cannon ball; (*b*) Weight of fish in water; (*c*) Hitting distant mark.

AGE: EIGHTEEN YEARS (Superior Adult)

1. Vocabulary: 75 words.
2. Binet's paper cutting test.
3. Repeats 8 digits: 72534896, 49853762, 83795482.
4. Repeats thought of passage heard (1 of 2): (*a*), (*b*).
5. Repeats 7 digits backwards: 4162593, 3826475, 9452837.
6. Ingenuity test (2 of 3).

FIG. 144(D) Back page.

Observations include general studies of behavior during test, since the emotional element must be determined. The test is given in a quiet room with no others in the room except the tester and the child. For each of the following ages a definite test has been worked out—three months, six months, one year, two years, three years to ten years individually, twelve years, fourteen years, sixteen years (average adult), eighteen years (superior adult). In the tests of the younger children emphasis is placed on ability to do certain physical (motor) acts. Later, reasoning and interpretation increase in importance.

Such a test can be given only by the trained psychologist and the interpretation thereafter is largely a matter of training and experience. Instead of writing, the child answers as a part of conversation, after he has become accustomed to the examiner. Some apparatus such as special block, cut-up picture and blocks, and certain special pictures are required, these forming definite problems.

From the findings, the mental age and the IQ are determined.

In these tests the practice is to accept only the work of approved psychologists.

The question as to who should make any of these mental examinations can be answered as follows:

(*a*) The group tests, because the personal equation is omitted, can be given, after brief instruction, by the teacher, at least for the first time.

By the time this large group of tests has been completed, and in successive years, it seems logical that the added experience attained by the teacher, plus the probability that she will familiarize herself further with the work by collateral reading or special courses, would permit her to do the retesting in special cases, unless the Principal desires to take special interest in this. Intensive University extension courses are sometimes provided for local teachers, if enough teachers will register for the courses.

(*b*) The individual retest of either the self-administering or group test type can be done by the regular school teacher or principal, as has been noted.

(*c*) Any test where the personal equation has not been entirely eliminated should be done by the trained psychologists and by such persons only. Others have not the ability to interpret results even if they should be able to give the test.

Testing, except as noted above by the unskilled person, makes the test by the expert much more difficult since it amounts to "training witnesses" and the child thus scores higher than he should. A similar phenomenon is seen in the hospital patient examined by a considerable number of doctors. The final examiner gets an excellent but not necessarily true story. Nevertheless, the wide range of tests makes this problem a minor one at present. For example, for the Stanford-Binet tests, one can substitute the Herring or Kuhlmann modifications.

Ample opportunity is available for any who desire to make special studies in preparation for work as psychologists.

Summarizing the situation, at present, the tendency in the tests is toward simplicity and self-administration. The work is most satisfactory in dealing with those of low mentality or with the younger children. Special tests of higher mental types, and of personality and aptitude are being developed, and much advance may be expected in this field. The tests will always have to be considered but one part of the picture, and a thorough study of doubtful cases will always require much more than a mere test. The tests promise to be of value to assist educators and others to properly select suitable careers for children, and help estimate their ability and achievement. At this moment, a previous tendency to overvalue intelligence tests, chiefly on the part of parents and uninformed teachers, unfortunately has tended to swing the pendulum of confidence away from them, except for retarded children. Additional harm has been done through attempted commercialization of this work by incapable propagandists.

Eventually these tests will occupy a more stable position in education and will contribute valuable data in the general consideration of a pupil. The field of testing will broaden, more than at present, in the direction of moral and social reactions.

The Multi-Mental Scale of Professor William A. McCall[1] is believed by the author to represent a forward step in test construction. One hundred

[1] Published by the Teachers College Bureau of Publications, New York, N. Y.

lists of associated words (of five words each) are printed on a single sheet of paper, in lines of ten groups each. A sample line is shown in illustration. One word in each group is to be selected as unsuitable or least suitable for the associations suggested in the group of words, as in Column D in Fig. 145, where *sister* and *brother* would be associated but the word *aunt* would bear the least relationship to the group. A time limit is set. Primary and secondary school tests are available.

The advantages claimed for this test are: It is

1. Inexpensive.
2. Rapidly administered.
3. Easily scored. A scoring stencil is provided.
4. Easily correlated with standard tests, such as the Binet and furnishes the same data.

MULTI-MENTAL SCALE

By William A. McCall and His Students, Teachers College, Columbia University.

Name_____ Grade_____ School_____ City_____ Age_____ Boy or Girl_____

A	B	C	D	E
chair	gate	sweet	mama	dog
dog	good	ripe	sister	leaps
table	big	red	papa	stone
bed	bad	crow	brother	runs
stove	little	apple	grandma	barks

1	2	3	4	5	6	7	8	9	10
fly	cup	horse	lesson	grass	robin	high	irrigate	black	word
burn	fork	calf	problem	coal	geranium	low	land	hot	paragraph
gasoline	saucer	colt	teacher	carbon	elephant	cat	soil	white	sentence
coal	bowl	hen	learn	tar	poppy	fever	cultivate	star	style
wood	knife	cow	solve	soot	bluebird	dangerous	navigate	cold	composition

91	92	93	94	95	96	97	98	99	100
eat	books	wool	sweet	chair	smooth	girl	ducks	baby	investigate
sing	power	cloth	lemons	room	road	walk	paddle	puppy	publish
book	knowledge	shoes	cake	hall	great	does	geese	kitten	editors
apple	paper	meat	sour	building	rough	sleep	fish	pig	write
read	food	leather	salty	door	table	play	swim	calf	printing

Copyright 1924 by Teachers College

If you finish before time is called, go back and improve your work.

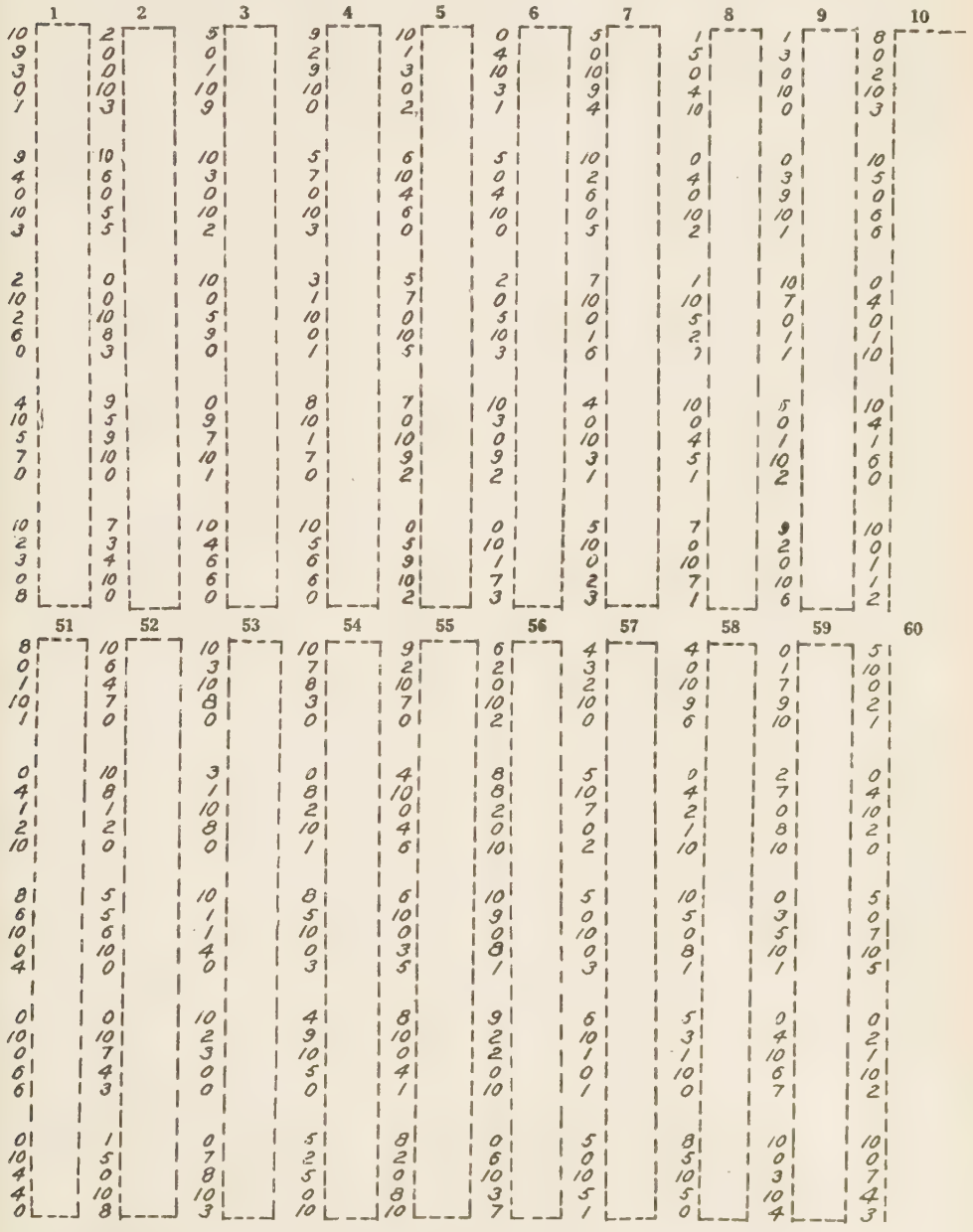
Total Score

FIG. 145. Top and bottom of McCall's Multi-mental Scale. Sheet is $8\frac{1}{2}'' \times 12''$.

MULTI-MENTAL SCORING STENCIL

Elementary School
Form I

1. Cut along the dotted lines. Then place stencil over pupil's test paper.
2. Add the credits earned in each row, and write in the square at the right.
3. Pay no attention to unmarked word-groups. When two or more words in a group are marked, score the mark the pupil intended as final. When his intent is not clear, treat the group as unmarked, here and below.
4. Total the credits in the ten squares, and write after *Total*.
5. Multiply the number of groups actually marked by five, and subtract from *Total* to get *Score*. If *Score* is negative, prefix a minus.
6. Convert this *Score* into G or T score or both, as desired, by means of table given in MULTI-MENTAL MANUAL.



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NEW YORK CITY

FIG. 146. Scoring stencil for McCall's Multi-Mental Scale.

A brief manual of directions is provided. This contains also tables for use in converting the test score into G[1] or T[2] scores, or mental age, as desired. Brightness scores and computations of effort (F scores) may also be obtained.

In addition to texts quoted directly or indirectly in this chapter, acknowledgement is hereby made of the liberal use of materials from the following manuals of directions, by permission of the World Book Co., Yonkers, N. Y. to whom the authors desire to express appreciation for their willingness to allow the use of materials which made this chapter possible:

Teacher's Manual of Directions for the Courtis Standard Practice Tests in Arithmetic: 1920 Revision.

Manual of Directions for the Downey Individual Will-temperament Test.

Manual of Directions for the Haggerty Intelligence Examination.

Examination Manual, Form A for the Herring Revision of the Binet-Simon Tests.

Manual of Directions for the National Intelligence Tests.

Manual of Directions for the Otis Classification Test.

Manual of Directions for the Otis Group Intelligence Scale.

Manual of Directions for the Otis Self-administering Tests of Mental Ability.

Manual of Directions for the Pintner-Cunningham Primary Mental Test.

Manual of Directions for the Stanford Achievement Test.

Manual of Directions for the Stenquist Mechanical Aptitude Tests.

Manual of Directions for the Terman Group Test of Mental Ability.

The reader is warned NOT to quote any statement in this chapter as coming directly from any of the above manuals, although most statements in this chapter will actually agree, in *fact*, with statements found in the basic material.

The following table from the catalog of a publishing house which prints a large number of intelligence tests[3] will show the wide range of tests available from one press alone, and the precise points in the educational career in which such tests may be used:

[1] "G score is grade score, *e.g.*, the pupil having a "G" score of 2.8 would be eight-tenths of the way through the typical second grade.

[2] The T score is a more scientifically unit of measurement than the G score or mental age, and hence is more suitable for careful scientific work. Also McCall uses it as a basis for determining a pupil brightness in intelligence, reading, and the like.

[3] Courtesy World Book Co., Yonkers, N. Y., Catalog of Standard Tests.

Tests Classified by Subjects and Grades

This table contains all tests, classified alphabetically by subjects in which the tests give measures, and shows the grades for which each test is designed. The tests may be used in the grades indicated by X's. Thus, under intelligence, the National Intelligence Tests are for grades 3 to 8 inclusive.

	Grades Elementary School								Grades High School				Years College					Special Uses
	K	1	2	3	4	5	6	7	8	9	10	11	12	F	S	J	S	G	Misc
Arithmetic																			
Courtis Standard Practice Tests in Arithmetic					X	X	X	X	X										
Otis Arithmetic Reasoning Test					X	X	X	X	X	X	X	X	X						
Stanford Achievement Test: —Arithmetic Examination			X	X	X	X	X	X	X										
Composition																			
Hudelson English Composition Scale					X	X	X	X	X	X	X	X	X						
Lewis English Composition Scales				X	X	X	X	X	X	X	X	X	X						
Van Wagenen English Composition Scales				X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Foreign Languages																			
Handschin Modern Language Tests									X	X	X	X	X	X	X				
Henmon French Tests										X	X	X	X	X					
Henmon Latin Tests										X	X	X							
White Latin Test										X	X	X	X						
Wilkins Prognosis Test in Modern Languages								X	X	X									
Handwriting																			
Courtis Standard Practice Tests in Handwriting				X	X	X	X	X	X										

	K	1	2	3	4	5	6	7	8	9	10	11	12	F	S	J	S	G	Misc
Science																			
Powers General Chemistry Test												X	X	X					
Ruch-Cossmann Biology Test										X	X	X	X	X					
Ruch-Popenoe General Science Test								X	X	X									
Spelling																			
Morrison-McCall Spelling Scale			X	X	X	X	X	X	X										
Tidyman Standard Spelling Tests			X	X	X	X	X	X	X										
Stenography																			
Blackstone Stenographic Proficiency Tests										X	X			X					X
Thurstone Employment Tests (Typewriting)																			X
Survey																			
Otis Classification Test					X	X	X	X	X	X									
Stanford Achievement Test: —Primary Examination			X	X															
—Advanced Examination					X	X	X	X	X	X									
Vocational																			
Stenquist Mechanical Aptitude Tests							X	X	X	X	X	X	X						
Thurstone Vocational Guidance Tests												X	X	X					
Will-Temperament																			
Downey Individual Will-Temperament Test										X	X	X	X	X	X	X	X	X	X
Downey Group Will-Temperament Test										X	X	X	X	X	X	X	X	X	X
Employment																			
Otis General Intelligence Examination																			X
Thurstone Employment Tests																			X
School Building																			
Butterworth School-Building Score Card																			X
Teacher Rating																			
Schutte Scale for Rating Teachers																X	X	X	X

	K	1	2	3	4	5	6	7	8	9	10	11	12	F	S	J	S	G	Misc
Intelligence																			
Detroit Kindergarten Test	X																		
Detroit First-Grade Intelligence Test		X																	
Haggerty Intelligence Examination: —Delta 1		X	X	X															
—Delta 2					X	X	X	X	X	X									
Herring Revision of the Binet-Simon Tests		X	X	X	X	X	X	X	X	X	X	X	X						
Miller Mental Ability Test								X	X	X	X	X	X	X					
National Intelligence Tests				X	X	X	X	X	X										
Otis Group Intelligence Scale: —Primary Examination		X	X	X	X														
—Advanced Examination					X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Otis S-A Tests of Mental Ability: —Intermediate Examination					X	X	X	X	X	X									
—Higher Examination										X	X	X	X	X	X	X	X	X	
Pintner-Cunningham Primary Mental Test	X	X	X																
Terman Group Test of Mental Ability								X	X	X	X	X	X						
Language																			
Cross English Test										X	X	X	X	X					
Wilson Language Error Test					X	X	X	X	X	X	X	X	X						
Music																			
Hillbrand Sight-Singing Test					X	X	X												
Reading																			
Detroit Word Recognition Test		X	X	X															
Haggerty Reading Examination: —Sigma 1		X	X	X															
—Sigma 3								X	X	X	X	X	X						
Stanford Achievement Test: —Reading Examination			X	X	X	X	X	X	X										

Suggested for Reading

Lincoln, E. A.: Beginnings in Educational Measurement, Lippincott, 1924.

Pressey, L. C.: Introduction to the Use of Standard Tests, World Book Co., 1922.

Pintner, R.: Intelligence Testing, Henry Holt & Co., 1923.

Directions for Standard tests published by the World Book Co., Yonkers, N. Y.

SPECIAL CLASSES FOR THE MENTALLY DEFICIENT

Classes for Mental Defectives are known by various titles, often somewhat euphemistic as a concession to the wishes of the general public. A few names used are Ungraded Classes, Classes for the Mentally Retarded, Special Classes, Opportunity Classes (here used in an unaccustomed meaning), the South School, Classes for the Unusual.

Methods of obtaining candidates. In some states by law, in others by custom, a census is taken in many cities of all school children three years or more retarded as compared with their normal classes. Thus a child, who for a total of three years had failed of promotion, would be listed. Such pupils are then given certain psychological tests and thorough histories are taken, after which they are examined by a group of specially trained persons, usually consisting of a psychologist, a social worker, and a physician, (commonly a woman) and opinion as to disposal of the case is given on the basis of physical and mental findings. Depending on the type of population, a varying number are recommended for "special class." Fernald has gone further and definitely worked out the needs of certain subgroups, thus furnishing a guide of great value to the teacher.

Types of children of low mentality. Naturally they are subnormal—they lack guiding power but many can be made at least partly self-supporting if someone can do the planning. Under suitable training and supervision they may attain a limited degree of usefulness and cease to become a total public burden or menace. They must include all grades from merely dull and slow children to cases on the verge of institutional care. The Kindergarten and first grade may contain children with very low mentality but they are soon detected and given institutional care.

Classifications. Several classifications are used: a few will be given here.

(*a*) *Cleveland classification.*

1. Dull normals. Intelligence Quotient 80–90. They can not make ordinary school progress or master intellectual difficulties to which average children are equal.

2. Borderline cases. IQ 70 or 75–80. These are doubtful cases which the teacher is always trying without success to restore to normality. They are often taught to read and write as a trick. They can be taught the trades advantageously.

3. Feeble-minded. IQ below 75. The Royal College of Physicians and Surgeons of London defines a feeble-minded person as one who is "incapable, because of mental defect existing from birth or from an early age, of competing on equal terms with his normal fellows and of managing himself or his affairs with ordinary prudence."[1] A feeble-minded person can not do even the simpler grades of school work with profit but can be trained to dress himself, etc. Identification and commitment of the subnormal to the ungraded or special class should always be made by the trained psychologist who should determine by tests the child's mental level. Such pupils should be selected at an early age, preferably not later than at seven years.

This classification is simple but offers little help as to methods of handling.

[1] Lincoln, E. A.: Beginnings in Educational Measurement p. 87, Lippincott, 1924.

(*b*) *Fernald's classification.* This is based on a thorough study of the child from all points of view by the clinics of the Department of Mental Diseases of Massachusetts. Children three or more years retarded are listed by the schools and special records prepared before the coming of the traveling clinic to the city. The clinic then makes its mental and physical examinations and records them on forms provided.

Fourteen different forms[1] (each $8\frac{1}{2}'' \times 11''$) must be filled out. They are:

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF MENTAL DISEASES
SCHOOL CLINIC RECORD

.....SCHOOL CLINIC No.....

Name

School Grade

Parents' name

Parents' address

Reasons for examination

Date of birth

Age

Mental age

I. Q.

Diagnosis

Advice given

Date of examination:

Examiner:

SECTION 13, CHAP. 123, REVISED LAWS. The department shall establish and maintain a registry of the feeble-minded . . . but the name of any person so registered shall not be made public except to public officials or other persons having authority over the person so registered, and the records constituting the registry shall not be open to public inspection.

FIG. 147. (1) A summary for final results.

[1] These fourteen forms are numbered Fig. 147. The additional number in parenthesis found beside the figure number is used to differentiate single forms composing the series, *e.g.* (2) is the second sheet of the series.

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF MENTAL DISEASES

SCHOOL CLINIC RECORD

FIELDS OF INQUIRY—SYNOPSIS OF FINDINGS

Name Age Date No.

Height Weight Circum.

1. Physical Examination:

2. Family History:

3. Personal and Developmental History:

4. History of School Progress:

5. Examination in School Work:

6. Practical Knowledge:

7. Economic Efficiency:

8. Social History and Reactions:

9. Moral Reactions:

10. Psychological Tests:

FIG. 147. (2) Field of inquiry. Synopsis of findings and includes name, age, date, height, weight, circumference, with a brief resumé of physical examination, family history, personal and developmental history, history of school progress, examination in school work, practical knowledge, economic efficiency, social history and reactions, moral reactions, psychological tests. This naturally summarizes the various findings and forms the final basis for opinion stated on the first page.

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF MENTAL DISEASES
SCHOOL CLINIC RECORD
CORRELATION OF CHRONOLOGICAL MENTAL AND SCHOOL AGE

Name Date No.

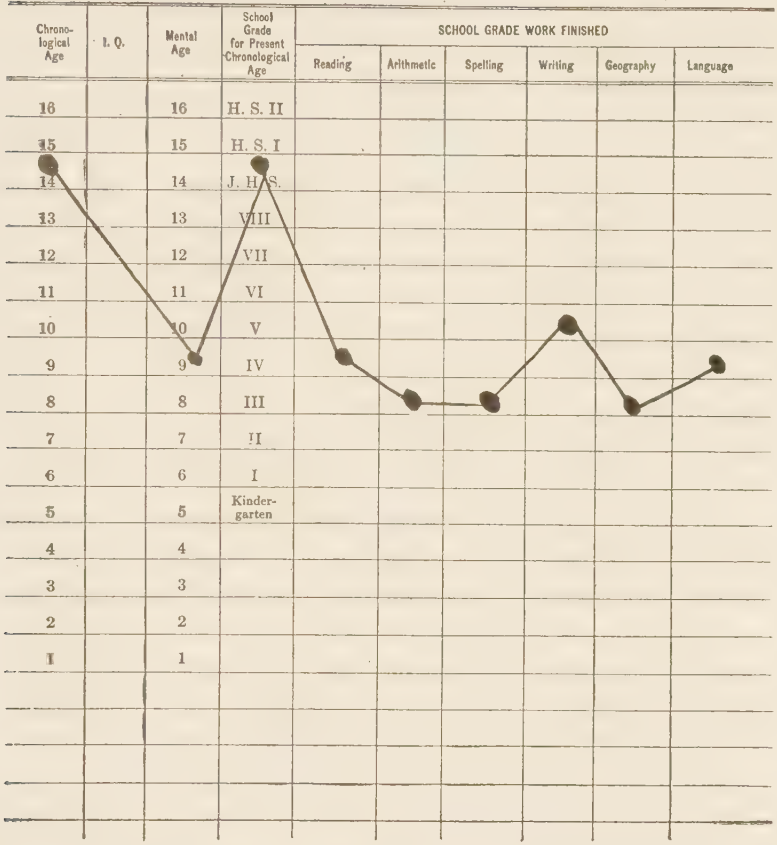


FIG. 147. (3) Correlation of chronological, mental and school age with record of chronological age, I.Q., mental age, school grade for present chronological age and record of school grade work finished in reading, arithmetic, spelling, writing, geography and language. Here the graphic form is used.

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF MENTAL DISEASES

SCHOOL CLINIC RECORD

PHYSICAL EXAMINATION

Name Date of Birth No.

Height - Sitting / Standing Weight

General appearance and nutrition

Sight	Face
Speech	Eyes
Hearing	Nose
Reflexes	Mouth
Genito Urinary organs	Tongue
Menses	Teeth
Cardio Vascular	Naso-Pharynx
Glands	Palate
Head	Ears
(a) Length	Skin
(b) Width	
(c) Circum.	Hair
(d) Cephalic index	Skeleton
Extremities	(a) Torso leg ratio
	(b) Spread of arms

Date of examination:

Examiner:

FIG. 147. (4) Physical examination. In travelling clinics the heart, lungs, and genito-urinary organs are not examined although this is done in the hospital cases. Skeletal examinations include standing and sitting height; length, width, circumference, cephalic index of head; torso-leg ratio and spread of arms for skeletal measurements.

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF MENTAL DISEASES

SCHOOL CLINIC RECORD

FAMILY HISTORY

Name No.

1. Brothers and sisters, with names and ages (Use ☐ male, ○ female) including those who have died, and miscarriages (Indicate *w*. *d*. and *cause*). Indicate any not sound in mind or body.

2. Age of parents at birth of child

Father Birthplace

Mother Birthplace Maiden name

3. Occupation of Father

4. Did the parents or relatives of this child ever show any peculiarity of mind or body, such as: (indicate with an "x" and relationship.)

Paternal		Maternal
	Insanity	
	Feeble-mindedness	
	Epilepsy (fits)	
	Convulsions	
	Paralysis (age of)	
	Sexual promiscuity	
	Syphilis	
	Gonorrhea	
	Tuberculosis	
	Alcoholism	
	Criminal	
	Pauper	
	Drug habitué	
	Blind	
	Deaf	
	Severe headache	
	Extreme nervousness	

5. Other facts concerning father, mother, or other relatives.

Date of examination:

Examiner:

FIG. 147. (5) Family history including deaths, miscarriages; those of unsound mind; occupation of father; maternal or paternal family history of insanity, feeble-mindedness, epilepsy, paralysis (age of), sexual promiscuity, syphilis, gonorrhea, tuberculosis, alcoholism, criminal, pauper, drug habits, blind, deaf, severe headache, extreme nervousness; other facts regarding father, mother or other relatives.

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF MENTAL DISEASES

SCHOOL CLINIC RECORD

PERSONAL AND DEVELOPMENTAL HISTORY

Name

1. Date of Birth. Place of Birth. No.
2. Was he born at full period?
3. Was birth difficult, prolonged, instrumental or unusual in any way?
4. Is there any history of convulsions? If so, describe, give date of onset, etc.
5. Describe fully any illnesses occurring before the age of 5 or 6 years.
6. At what age did he begin to walk?
7. At what age did he begin to talk?
8. When did the first teeth appear?
9. At what age did mental peculiarity manifest itself? Was he backward or peculiar from birth, or did symptoms of peculiarity develop suddenly? Describe fully.
10. As a baby did he "take notice", sit up, play with toys, etc., at the usual age?
11. Was he different from other babies in any other way?
12. Could he dress h self at the usual time?
13. Does he wet the bed or day clothing?
14. Does he soil the bed or day clothing?
15. Has he ever masturbated?
16. Does he hide, break or destroy things?
17. Is he able to go about alone and protect h self from ordinary dangers on the street and elsewhere?
18. What hospitals has he been in? Where? When? Why?

Date of examination:

Examiner;

FIG. 147. (6) Personal and developmental history including place and date of birth, age of appearance of common phenomena such as walking, personal hygiene, ability to protect self from customary danger; any hospital treatment.

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF MENTAL DISEASES
SCHOOL CLINIC RECORD
HISTORY OF SCHOOL PROGRESS

Name No.

1. At what age did he first attend school?

2. Where did he attend school?

3. How long was he in the first grade?
   How long was he in the second grade?
   How long was he in the third grade?
   How long was he in the fourth grade?
   How long was he in the fifth grade?
   How long was he in the sixth grade?
   How long was he in the seventh grade?
   How long was he in the eighth grade?

4. What does teacher say of h school progress and behavior?

5. Is he a truant? If so, what is h own reason for playing truant?

Date of examination:

Examiner:

FIG. 147. (7) History of school progress including when child first attended school and the stay in various grades; the opinion of the teacher as to his school progress and behavior; history of truancy and his reason for it.

RECORD SHEET

FOR

SCHOOL TESTS.

These tests are used to determine the school age for purposes of diagnosis, especially in outpatient clinics, and for assignment to the proper school grade.

In giving the school test begin with writing, then take language, reading, spelling, geography, and number. Start each subject at the writing level. Judge writing above fourth grade for speed, legibility, regularity of letters, and spacing between words and lines.

In each subject the basal grade is the one where every step is plus. If the steps in the first half of the grade above the basal grade are plus, the child is then considered ready for that grade. If in the latter half of any grade several steps are minus, the child should repeat the grade. In scoring, use a red-lead pencil. Put a plus sign opposite each question correctly answered, and a minus sign opposite each question incorrectly answered. The children to be examined should not see or know about the questions before examination.

NAME	CHRON. AGE	REMARKS:
BORN	MENTAL AGE	
DATE OF EXAMINATION	I. Q	EXAMINER

First Grade

1. READING:
   I can see. I can see the ball.
   The horses are in the barn.

2. ARITHMETIC:
   Count by 1's, 2's, 5's, 10's, to 50.
   $2+2$ $4+3$ $5+4$ $3+7$
   $3-1$ $7-2$ $8-5$ $9-6$
   If I have 5 marbles and find 3 more, how many shall I have in all?

3. SPELLING:
   dog, boy, man, book, sing, play.

4. WRITING:
   Copy — 4, 2, 6, a, e, i, g.

5. LANGUAGE:
   Make a sentence about a familiar object.
   Use a capital letter at the beginning of a sentence.

Second Grade

1. READING:
   John ran to the brook.
   Grandpa makes hay in the meadow.
   The long summer vacation is coming.

2. ARITHMETIC:
   Count by 1's, 2's, 5's, 10's, to 100.
   $8+7$ $9+8$ $17-4$ $15-7$ 3×6 7×3
   $16\div8$ $12\div3$ $\frac{1}{2}$ of 12 $\frac{1}{4}$ of 16
   If 1 apple costs 5 cents, how much will 3 apples cost?

3. SPELLING:
   jump, about, water, pencil, father, bright.

4. WRITING:
   Write name.
   Copy — I can see the ball.

5. LANGUAGE:
   Use a period at the close of a statement.
   Use a question mark at the close of a question.
   Use capital letter rules for months, and names of persons.

FIG. 147. (8) Outside front. School tests. These are to determine the school age and consist of brief and suitably graded material for writing, language, reading, spelling, geography and number except where one or more subjects has not as yet been taught. There is a separate set of questions for each grade. The basal grade is the one where every step is plus in that subject. Scoring is on the "right" or "wrong" basis.

Third Grade

1. READING:
   The summit of a volcano is shaped like a great bowl, and is called a crater.

2. ARITHMETIC:
   Add $102 + 227 + 342 + 135$
   Multiply 1346×6
   Subtract $792 - 345$; $487 - 298$
   Short division, $583 \div 3$
   At 10 cents a dozen, how many dozen tea-rolls can you buy for 50 cents?

3. SPELLING:
   Church, winter, picture, company, November, breakfast.

4. WRITING:
   Dictate — The boys are making a kite.

5. GEOGRAPHY:
   Name the seasons. Where does the sun rise? Name the races of men. To what races do the Eskimo, Indian, and Japanese people belong?

6. LANGUAGE:
   Use capital letter rules for holidays, streets, cities, and titles.
   Know abbreviations for Mr., Mrs., Ave., and Dr.

Fourth Grade

1. READING:
   The surface of Italy varies greatly in different parts of the peninsula.

2. ARITHMETIC:
   Add $3987 + 4682 + 6436 + 1486$
   Subtract $489379 - 173285$
   Multiply 8202×53 Long division, $87892 \div 23$
   $\frac{3}{4} + \frac{1}{2}$ $\frac{5}{8} - \frac{1}{4}$
   If I have a $1.00 bill and buy apples for 15 cents and bananas for 50 cents, how much change shall I have left?

3. SPELLING:
   Lantern, envelope, journey, mountain, remember, foreman.

4. WRITING:
   Write name and address correctly.

5. GEOGRAPHY:
   Define — mountain, river, plain, volcano.
   Name the products and industries of U.S.A

6. LANGUAGE.
   Know abbreviations for ft., pt., hr., Mon., yd., pk., Mass., mi., sq. ft., Capt.
   Use capital letters in abbreviations Mr., Dr., Ave., St., Aunt, Uncle, when followed by a name.

FIG. 147. (8) Inside left.

Fifth Grade

1. READING:
   Penn graciously accepted these offerings, and made a noble use of his authority over his province.

2. ARITHMETIC:
   Multiply 58.67 × 3.84 Divide 15.625 ÷ 2.5 $18\frac{1}{2} + 12\frac{3}{4}$
   $24 - 12\frac{3}{4}$ $\frac{3}{4} \times \frac{1}{2}$ $\frac{5}{8} \div \frac{1}{16}$ $\frac{1}{4}$ of 624 $2\frac{1}{2} \times 4\frac{1}{2}$
   From a bolt of cloth a clerk sold $\frac{2}{3}$ at one time and $\frac{1}{4}$ at another. How much of it was left?

3. SPELLING:
   Machine, volcano, laundry, understand, important, agriculture.

4. WRITING:
   Write name and address correctly.

5. GEOGRAPHY:
   Name oceans, rivers, cities of U.S.A.
   Name New England States. Name Western States.

6. LANGUAGE:
   Use in a sentence — an, their. had seen, have written, too, these.

Sixth Grade

1. READING:
   The gentlemen distributed the property among an inferior class of proprietors, some of whom cultivated the land themselves, and others by means of husbandmen and peasants.

2. ARITHMETIC:
   I have a $2.00 bill and buy 2 boxes of raisins at 16 cents a box, and 4 lbs. of rice at 12 cents a lb. How much money is left?
   How much cloth at 25 cents a yd. is worth a barrel of sugar containing 195 lbs. at 10 cents a lb.?
   If a horse eats $1\frac{1}{2}$ pks. of oats a day, how long will $22\frac{1}{2}$ pks. last?
   Add and reduce to a mixed number $\frac{3}{8} + \frac{1}{16}$

3. SPELLING:
   Camera, journal, customer, material, impossible, exclamation.

4. WRITING:
   Write name and address correctly.

5. GEOGRAPHY.
   Name countries of Europe. Name the products and industries of Europe. Name the mountain ranges and rivers of Europe. In which hemisphere is Europe?

6. LANGUAGE.

Which is correct —	Use in a sentence —
You were, or you was	Are there
Let me go, or leave me go	There is
There are, or them are	knew
It is I, or it is me	anything
I did, or I done	nothing
Shall we, or will we	
Shall I, or will I	

FIG. 147. (8) Inside right.

Seventh Grade

1. READING:
   So rapid was the progress of the light vessels that the lake curled in their front, in miniature waves, and their motion became undulating by its own velocity.

2. ARITHMETIC:
   Find the interest on $600 for 4 yrs. at 6%.
   If a man pays $3.00 per mo. for milk and this is 4% of his table expenses for the mo., what are his table expenses?
   A house that cost $8450 was sold for $11,000. What % was gained?

3. SPELLING:
   Diameter, introduce, comparison, brilliant, literature, information.

4. WRITING:
   Write name and address correctly.

5. GEOGRAPHY:
   In which zone does Africa lie? Why are the rivers of Africa navigable for so short a distance? Of what type are the natives of Africa? Compare Asia with the other continents as to size, density of population, and climate.

6. LANGUAGE:
   Recognizes — noun, verb, adjective, adverb, preposition.
   Use a phrase in a sentence.

Eighth Grade

1. READING:
   It was too obvious now that their situation was imminently perilous, to need the aid of language to confirm it.

2. ARITHMETIC:
   If a person can walk $8\frac{1}{2}$ mi. in $2\frac{1}{2}$ hrs., how many miles can he walk in $3\frac{1}{4}$ hrs.?
   A rectangular field is 40 rods long and 35 rods wide. What is its area? How much is it worth at $80 per acre?
   Find the interest on $1750 from May 5, 1920, to June 21, 1921, at $5\frac{1}{2}\%$.

3. SPELLING:
   Argument, miscellaneous, distinguish, investigate, thermometer, extraordinary.

4. WRITING:
   Write name and address correctly.

5. GEOGRAPHY:
   In what way has the Chinese religion hindered the progress of the nation?
   To what is the rapid growth of North America due?
   Why is irrigation necessary in the Western States, and what effect has it had upon their development?
   Give some reasons why Argentina is the most progressive country of South America.

6. LANGUAGE:
   Make a complex sentence.
   John's brother has given him your book.
   Parse — brother, him, your, has given.

FIG. 147. (8) Back.

BLIN—DAMAYE ** GENERAL INFORMATION No.

Name
Date
Examiner

1. When is your birthday?
2. How long have you gone to school?
3. In what grade are you?
4. Do you study geography?
5. At what time do you go to school? How long recess do you have?
6. In what state do you live?
7. What is your father's name?
8. What does your mother do?
9. What does your father do?
10. How do you know when a person is old?
11. What do you call this (cheek)?
12. Where is your stomach? Brain? Chest?
13. Of what use is a pin?
14. What is a photograph?
15. What time of the day are you hungriest?
16. Are you more thirsty in summer or in winter? Why?
17. What is a dream? A pain?
18. When you get up to-morrow will it be morning or evening?
19. Are you an American? Why?
20. Why should one love his own country best?
21. What do you mean by "trading"?
22. What is your religion?
23. What is a janitor?
24. What things would you need to fry eggs?
25. How does one make a fire?

FIG. 147. (9) Blin-Damaye test for general information. The questions are of the type of: When is your birthday? How long recess do you have? What does your father do? What is a photograph? What things would you need to fry eggs? In all there are twenty-five questions.

Practical Knowledge and General Information No.

Date

MASSACHUSETTS SCHOOL FOR THE FEEBLE-MINDED Examiner

The following questions, always varied or modified to suit the particular case, only indicate the general line of inquiry likely to show the mental capacity and ability. The answers elicited will suggest further queries.

How old are you?
What year were you born?
How old are your brothers and sisters?
What was your mother's maiden name?
Where do you live?
Is it a city or town?
How far from Boston (or the nearest large city)?
What is the railroad fare from Boston?
What towns are near your own town?
Name some large cities in Massachusetts.
Name some rivers in Massachusetts.
Name some mountains. Where are they?
What is made in Lynn, in Lowell, in Waltham?
Who is the Governor of Massachusetts?
Who is the President of the United States?
Who is the King of England?
Do you read any newspapers? Which ones? Which departments?
What news in the papers recently?
What books have you read? Tell the story of one.
How high is this door?
How long is this pencil?
How tall are you?
How much do you weigh?
What size shoe do you wear?
What does a pair of shoes cost? A hat? Gloves?
Name some flowers, vegetables, animals.
Describe streets, mills, buildings, etc., in your town.
What did you see on your journey this morning?
What job would you like?
Where have you worked?
Why did you leave your last job?
What wages did you receive?
What do you like to do best?
What wages does a carpenter receive? A cook? A waitress? etc.
Do you play base ball? What position?
Did the Red Sox win yesterday? What was the score?
Who was the pitcher?
How much does a baseball cost?
How long would you boil an egg?
How long would you bake a potato?

FIG. 147. (10) A similar but more extensive questionnaire on practical knowledge and general information.

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF MENTAL DISEASES
SCHOOL CLINIC RECORD
ECONOMIC EFFICIENCY

Name No.

(This sheet does not apply to children under 14 years of age, as a rule, except to indicate helpfulness at home, but is most important in determining the mental condition of the adolescent.)

1. Has he ever earned wages?

2. Kind of work? Wages? Quality? Reason for leaving?

3. What does employer think of h · ?

4. How much supervision does he require?

5. If he has never earned wages, what kinds of useful work is he capable of doing in the home or elsewhere?

Date of examination:

Examiner:

FIG. 147. (11) For children over fourteen, except those who help with work at home, a record of economic efficiency is taken. This includes kind of work the individual performed and wages he received; quality of work and reason for leaving work; the employer's opinion of him; how much supervision he requires; in case he has never earned wages, what kinds of useful work he is capable of doing at home or elsewhere.

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF MENTAL DISEASES

SCHOOL CLINIC RECORD

SOCIAL HISTORY AND REACTIONS

Name No.

1. Environmental conditions:
   (a) Home
   (b) Neighborhood
2. Whom does he choose for associates?
3. Does he play with children of h own age?
4. Is he teased by other children, and if so, what are h reactions to being teased?
5. Is he accepted as an equal by boys and girls of h own age?
6. Is he a leader, or is he led by others?
7. What are h amusements, interests and recreations?
8. Is he quarrelsome or cruel to other children?
9. Indicate any definite character traits, such as being:

Egotistical	Seclusive
Quarrelsome	Social
Passionate	Impulsive
Selfish	Emotionally unstable
Vain	Ill-tempered
Obedient	Resentful of authority
Suggestible	Over-affectionate
Stubborn	----------
----------	----------
----------	----------

(Underscore traits characteristic of child)

10. Remarks

Date of examination:

Examiner:

FIG. 147. (12) Social history and reactions. The inquiry includes environmental condition both in home and neighborhood; choice of associates; relation to children of his own age, including leadership; amusements, interests, and recreations; personal traits, whether quarrelsome, egotistical, passionate, selfish, stubborn, over-affectionate, impulsive, emotionally unstable.

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF MENTAL DISEASES
SCHOOL CLINIC RECORD
MORAL REACTIONS

Name No.

1. Does he lie? Steal?

Protectively?
Maliciously?
Imaginatively?
Purposelessly?

2. Any evidence of abnormal interest or practice in sexual matters?

3. Has she borne illegitimate children?

4. Has he a court record? Where? Why?

5. Remarks

Date of examination:
Examiner:

FIG. 147. (13) Moral reactions. Does he lie protectively, maliciously, imaginatively purposelessly; similarly with stealing? Any evidence of abnormal interest or practice in the sexual field. Has he a court record? The record of the Stanford revision of the Binet-Simon tests is the fourteenth form of the Fernald series of records. For this form see Fig. 144, page 296.

The reader should notice the comparative emphasis placed on history and physical findings as compared with the mental tests. This will furnish a fairly accurate idea of the true standing of the mental tests.

Prognoses. When all information needed is obtained, the complete examination records are studied and prognoses made. The following tables are used by Fernald's Clinics in determining the child's probable future.

II. Classification (Fernald)

Genius	above 1.40
Very superior	above 1.20–1.40
Superior	above 1.10–1.20
Normal	above .90–1.10
Dull	above .80– .90
Borderline	above .70– .80
Feeble-minded	below .70
Moron	below .50– .70
Imbecile	below .20– .25–.50
Idiot	below .20– .25

Fernald's Prognosis Table for Persons of Low Mentality

Intelligence quotient	Probable adult mental age	Probable final school grade
30	5	Kindergarten
40	6	First grade
45	7	Second
50	8	2nd or 3rd
60	9	3rd or 4th
65	10	4th or 5th
70	11	5th or 6th grade except in arith.
80	12	

Relation of Mental Age to School Grading (as Shown from Prognosis Table)

A child of mental age of 6 years can do first grade work
A child of mental age of 7 years can do 2nd grade work
A child of mental age of 8 years can do 3rd grade work
A child of mental age of 9 years can do 4th grade work
A child of mental age of 10 or 11 years can do 5th grade work except in arithmetic.

FERNALD'S TABLE FOR FINDING YEARS OF RETARDATION OF SCHOOL PROGRESS

First entered kindergarten, years in school	First entered advanced kindergarten, years in school	First entered grade 1B, years in school	Normal grade for years in school
0	0	0	kindergarten
½	0	0	advanced kindergarten
1	½	0	1B
1½	1	½	1A
2	1½	1	2B
2½	2	1½	2A
3	2½	2	3B
3½	3	2½	3A
4	3½	3	4B
4½	4	3½	4A
5	4½	4	5B
5½	5	4½	5A
6	5½	5	6B
6½	6	5½	6A
7	6½	6	7B
7½	7	6½	7A
8	7½	7	8B
8½	8	7½	8A
9	8½	8	9B
9½	9	8½	9A
10	9½	9	10B
10½	10	9½	10A

Fernald's standard classification for cases of low mentality. When the study of the individual of low mentality has been completed, Fernald's clinics then make one or more of the following recommendations regarding the child, a report being sent to the school.

1. *Continue in grade.* This plan is used: Where the child is more than twelve years old and the defect is not too obvious. Such children if put in a special class feel they are ignominiously demoted. The ideal way is to have special classes provided for older children with only a moderate defect.

2. *Needs special class.* In this group are placed: Children under twelve who are three or more years retarded, also those over twelve who are physically unfit or who are markedly defective.

3. *Needs manual and industrial training.* Backward children succeed best when they are capable of doing worth-while work with their hands and this should be the end and aim with such pupils.

This type of work is planned according to the mental and chronological ages of the child. Hence with young children of low mentality, begin with the use of pencils, rulers, crayons, water colors, paper-folding, paper cutting, etc., with an ultimate aim of actual work with tools and materials such as carpentry work, painting, hand weaving, cobbling, etc. This latter training should be carried on intensively from the age of twelve till such children leave school.

Teachers of many classes for the mentally deficient fail to grade their work properly according to the physical ability of the child. Yet the

response of parents to requests for permission to place their children in these classes is bound to be on a somewhat economic as well as psychological basis.

For the manual training noted above, rough but suitable apparatus and material should be provided. For pupils of somewhat lower mentality a pile of bricks, a wheelbarrow, a pick and shovel with opportunity to use them are of utmost value, although this last plan is not usually in operation at present. One should understand that the hope is not to make the child a skilled laborer but rather to expect to teach him the rudiments of several trades, picking up a new one if interest lags in the last, the main object being to *teach them to work and to love to work.*

The actual trades taught should be based on the industries prevailing locally. The unfriendly attitude of certain employers may be removed if they know that prospective employees of this type have had the benefit of a certain degree of training. The earnings of such a group are surprisingly large.

With *girls* the simpler tasks of domestic science should be of primary interest, such as washing and ironing clothes, peeling potatoes, washing dishes, blacking stoves, etc. For those who have the ability, the feminine handicrafts are needed, including knitting, crocheting, darning, millinery, dress-making, weaving, machine sewing. Such instruction is begun at the age of twelve and should predominate in the program after fourteen.

In the work-shop school one instructor can handle between thirty and forty pupils and take one class in the morning with another in the afternoon. For such training at least one hour of the pupil's time daily is essential.

The value of the work is increased if the articles made are of a practical type which can be sold, or used by someone. The lack of imagination of these children defeats an interest in something to be merely looked at. It is necessary to provide some additional objective such as making a present for a parent, or earning money by making an article.

The instructor must be thoroughly familiar with the mental age limitations and possibilities of all of this group. "The best the child can do is good enough."

4. *Needs social supervision and protection.* This group includes almost all children three or more years retarded. Both home and all other activities must be given intelligent supervision until the time when the child passes beyond school control. Definite instruction and explanation for the parents as to the needs of this type of deficient child is essential. The girl is not a moral sex menace herself, but is in danger from others, especially at puberty.

5. *The child may become delinquent.* He belongs to a small group who add to mental deficiency such traits as lying, stealing, disobedience. They are quarrelsome, stubborn, passionate, resentful of authority. Unless properly cared for, delinquency will occur at an early age. Here the coöperation of the family, clergy, police, welfare agencies and neighbors is important. Special social supervision, protection, and assistance must be furnished.

6. *Needs medical attention.* Such service is required in addition to the pupil's other needs.

Fernald's system without doubt represents the most usable classification and technic for handling such classes.

Barr[1] gives the following Educational Classification of the feeble-minded. Notes show correlations with Fernald's classifications.

Idiot.

1. Asylum case. Profound, apathetic, excitable, unimprovable. Superficial, apathetic, excitable, improvable in self help only.

Idio-imbecile.

Improvable in self help and helpfulness. Trainable to a very limited degree to assist others.

Moral imbecile.

2. Custodial life and perpetual guardianship (includes Fernald's 3, 4, and 5). Mentally and morally deficient. Low grade, trainable in industrial occupation; temperament bestial. Middle grade, trainable in industrial and manual occupations; a plotter of mischief. High grade, trainable in manual and intellectual arts, with a genius for evil.

Imbecile.

Long apprenticeship and colony life under protection (includes Fernald's 2, 3, and 4). Mentally deficient. Low grade, trainable in industrial and simplest manual occupations. Middle grade, trainable in manual arts and simplest mental acquirements. High grade, trainable in manual and intellectual arts.

Backward and mentally feeble.

Trained for place in the world (includes Fernald's 2 and 3). Mental processes normal, but slow and require special training and environment to prevent deterioration; defect imminent under slightest provocation, such as excitement, over-stimulation or illness.

Barr includes all of the groups of Fernald's classification but is more detailed in mentioning various types. Fernald's classification is superior because he gives grading and ages.

Ebaugh,[2] in a study of several hundred delinquents in the Pennsylvania State Home for Boys, found the following classification of delinquents helpful and workable in promoting preventive measures and treatment. Since deliquency is one of the problems to be met in the supervision of the mentally deficient, his grouping may prove useful in special class work.

1. *Mental deficiency group.* Associated with definite reduction of mental capacity and ability especially as demonstrated by the imbecile and moron groups (these being the groups largely covered in the classifications previously given).

2. *Endocrine group.* Cases of infantilism especially noted in disorders of the pluriglandular types.

3. *Organic groups.* Associated with definite organic diseases such as syphilis and tension states.

4. *Psychotic group.* Includes adolescents who may present many features of actual psychoses including paranoid states, and constitutional psychopathic inferiority.

[1] Barr, M. W.: Mental Defectives, p. 90. P. Blakiston's Son & Co., 1904.

[2] Ebaugh, F. G.: Delinquency in Children, The American Educational Digest, Vol. 43, No. 7, Mar., 1924, pp. 301–303.

New York State requires the individual diagnostic study of all children who are three years or more retarded in school. Record is made in the following form:

OFFICE OF BOARD OF EDUCATION

ALBANY, N. Y.

MEDICO-PSYCHOLOGICAL LABORATORY

Clinton P. McCord, M. D., Director

Examination of _____ School _____ Grade _____

Parents _____ Address _____

Brought to Laboratory by _____ Year of Birth _____ Nationality _____

History and Medical Examination:

Diseases child has had _____

Injuries _____

First child? _____ Learned to walk at _____ To talk at _____

Speech defect? _____ Breast fed? _____ Epilepsy? _____ Father's Age _____

Mother's age _____ Health? _____

Brothers? _____ Sisters? _____ Health? _____

Any "queer" or "peculiar" persons in family? _____

Eyes: R. _____ L. _____ Glasses? _____ Color vision _____ Ears: R. _____ L. _____

Tonsils: R. _____ L. _____ Nose _____ Teeth _____

Nutrition _____ Orthopedic defects _____

Skin and glandular _____

Nervous disorders _____

Reflexes _____

Circulatory _____

Respiratory _____

Remarks: _____

Sociological data:

Father's occupation _____ Mother's occupation _____

Family income _____ Number in family _____ Does child work? _____

Nature? _____ What is desire of parent concerning child? _____

What is child's ambition? _____ Habits? _____

Physical and moral conditions in the home _____

Hereditary defects in family? _____

Remarks: _____

FIG. 148(*A*). 8″ × 13″. History, medical examination, sociological data.

Educational:

How many years in school?_____ Absent?_____ Irregular?_____

How many grades passed?_____ Opinion of his principal and teachers_____

Give list of things child can do_____

Simple things child cannot do_____

Does child play?_____ Is he a leader?_____

Is child morose? Quarrelsome? Stubborn? Quiet? Obedient? Affectionate? Timid? Truthful? Slow or quick? Excitable? Quick-tempered? Forgetful? Good-natured? Mischievous? Cranky? Willing and tries? Apathetic? What is the capacity of the child in

Reading_____ Observation_____

Writing_____ Attention_____

Spelling_____ Imitation_____

Number_____ Memory_____

Manual work_____

Psychological:

Mental age_____ Basal year_____ Motor control_____

Emotive?_____ Remarks_____

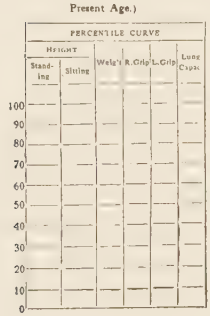
Other psychological tests_____

Measurements:

Height, standing_____ Grip, right_____ Weight_____

Height, sitting_____ Grip, left_____ Lung capacity_____

(Psycho-physical Curve for Child's Present Age.)



Anthropometric Curves

(This Child's Psycho-physical Curve Drawn for a Child of Age_____)

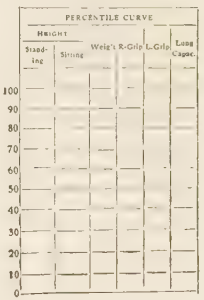


FIG. 148(*B*). 8″ × 13″. Educational, psychological, anthropometric data.

Clinics

The psychological clinic of the travelling type has proved valuable in Mass. under Fernald. Previous to the arrival of the Clinic Staff, lists of children to be tested are prepared, and psychological tests are made, if an approved person is available. The clinic consists of a physician (usually a woman), a psychologist and a social worker. Examinations consist of a thorough history, both personal and family, which is prepared previous to the coming of the clinic; physical examination in which no clothing is removed; and further psychological tests. On the basis of these findings the three-year retarded children are classified according to Fernald's plan and the findings and recommendations are sent to the school system. On the basis of this work, the children are placed in special classes after permission of the parents is secured.

The toxic or focal origin of mental retardation and disease is thoroughly emphasized and efforts at remedy made. It is understood that nothing in treatment beyond arresting the process in *statu quo* may be accomplished.

When the number of pupils is sufficient, it may be desirable for a school system to have its own mental clinic for the purpose described above. If this is planned, the personnel should be approved, and actually work, as a part of the state's mental disease program. The state clinic has the advantage of not being subject to local influence and, being from out of town, sometimes possesses more prestige than is possible for a local group, even if local psychiatrists and psychologists are equally competent.

Such clinics, consisting of one physician, one psychologist and a social worker, can usually study about fifty children a week if material is well-prepared before their coming and if a clinic manager is available. One city of 20,000 school population has a full-time psychologist in charge of the special classes and has associated with her a nurse whose full time is spent in taking histories and making contacts with parents. About three hundred cases a year are studied in this way, the travelling clinic spending six weeks for its part of the work.

In some school systems, the visiting teacher performs some of the functions outlined above for the special nurse.

Classroom for Mental Defectives

The custom in many small school systems is to segregate such classes on one of the upper floors or at least in rooms where the activities of other classes disturb as little as possible. This is required because of the inability of such pupils to concentrate. Some school systems devote a small separate building to the purpose (as at Plymouth, Mass.).

Object in location and furnishing. Produce the liveliest possible impressions at the same time avoiding over-stimulation of an unstable nervous system.

Situation. The room should be so placed that other classes or street noises will not disturb the pupils and the special class will not trouble other groups, through noise or otherwise. Top floors seem to be preferred loca-

tions for such classes. Suitable lavatories should be easily accessible. Plenty of air and sunshine is desirable.

The number of rooms needed depends on how comprehensive a program can be given. In some systems one room is used as classroom, manual training room, and rest room, as well as for physical training. Portable furniture will make this possible. A better basis is: at least one room for class work; another for manual work; a third for a rest room and physical training.

Equipment.[1] The class can often be started with a minimum of material and the children utilized to make simple things later. The essentials of equipment may be thus classified in a unit equipment for 15.

Class work.

18 portable chair-desks of suitable size—(to provide for emergency additions)
1 teacher's desk

Manual training.

1 teacher's desk if desired
10 suitable tables. Often ordinary pine top kitchen tables about 36″ × 23″ are satisfactory. For ordinary table work
20 chairs 12″ × 14″ leg sizes
3 double work benches 51″ × 22″. The usual tools
1 sand tray
Oak tag paper, library paste, glue, pencils, raffia, material for basket weaving
Sand, bricks, wheelbarrows, mortar, shovels, etc., for heavy manual labor

Rest (not an absolute essential).

20 steamer chairs or cots. The present belief obtains that cots usually offer better opportunity for real rest
20 blankets, one for each individual and kept separate for him. This avoids cross infections

Exercise and recreation.

Simple gymnasium apparatus such, as 20—3½ ft. wands, 15 pairs of one pound and ¾ pound dumbbells
½ doz. bean bags
For music: a victrola, piano, or pianola

Size of class. The class should be small, the number depending on the ability of the school system to provide enough classrooms, and the actual need existing—fifteen is a good number although much depends on the personal ability of the teacher. More than fifteen pupils should not be added unless considerable necessity arises.

A specially trained supervisor is desirable for such classes where more than one class exists. She should be a psychologist of approved ability, able to make thoroughly reliable tests which may be used by the clinic as part of the clinic's routine. She should be thoroughly conversant with child psychology and psychiatry and in constant touch with advances made in this special field. She should depend for medical services on the medical director and on the proper superintendent for teaching program. In case no medical

[1] Modified from Holmes, Arthur: "Backward Children," Bobbs-Merrill Company, Indianapolis, Ind.

official is in the school system, she should be entirely responsible to the second official. A woman physician who is a psychologist could, after special pedagogic training, become an ideal supervisor of this type of special classes.

Curriculum and daily program. In these classes progress and development are more important than output of articles manufactured. On the other hand these classes represent an additional expense to the community and an effort should be made to make them partly self-supporting. The type of article made in these classes should be saleable, and a market established, because these children can thus be given a means of earning a partial living later and by their labor in the classes may be able, in equivalent, to pay a partial tuition for their special privileges. This matter should be handled carefully, however, since the community should not get the false idea that these children are being exploited for financial purposes. Usually, allowing the child possession of a portion of his product is advisable. If the child wishes to purchase the raw material, he should be given personal possession of his product. Often it is best to let the pupils have all things which they make, thereby avoiding any accusation that the children are exploited by the school.

The training and studies in these classes should be of distinct economic benefit to the children. At present comparatively few employers care for the child who has the mentality seen in these classes, but this objection of the employers is being eliminated. The school can (1) secure suggestions from factory executives as to what positions would be offered to such pupils; (2) train the pupils for such work. The mental and emotional instability of these children has made them difficult employees to handle and many children become "drifters."

The following types of practical instruction[1] have proven advantageous for such classes, but it is, of course, necessary to adjust the instruction to the type of individual found in the class:

(*A*) Printing and book binding in shop work. The latter can be done in small hand frames at small expense.

(*B*) Preparation and serving of noon meal, provided the one session day is used.

(*C*) For girls, all branches of housework.

(*D*) School garden and farm instruction.

(*E*) Heavy manual labor of the unskilled type.

The objection to most of the program outlined is that it involves considerable expense and space. Where these are available the best results are obtainable. In many school systems good work is done in the classes through the use of crude types of manual training, such as making various wooden articles of simple construction, and painting or staining these; basketry and other types of raffia work; knitting; or with boys, making nets, etc. may be substituted; simple book binding on hand frames. The real teacher will insist upon as excellent work in each article as is individually possible. Individual tastes must be considered, if only to develop self-dependence, satisfaction and reasonable pride.

[1] Modified from Holmes, Arthur: *loc. cit.*

Backward adolescents. The greatest problem is what to do with the adolescent boy. He is often disagreeable and is bored with the surroundings. Frequently it is better for him to be employed at some definite job. He is strong and perhaps hard to handle; prone to sulk. For him the heavy manual labor of the unskilled type is desirable and when facilities permit, Fernald's suggestion regarding it (described in this chapter on page 322) should be carried out.

DAILY PROGRAM FOR CLASSES FOR BACKWARD CHILDREN[1]

(A Suggested Daily Program for Backward Children)

9.00– 9.15	Opening exercise
9.15– 9.30	Morning talk to all
9.30– 9.45	Written language
9.45–10.00	Paper language
10.00–10.15	Number
10.15–10.30	Relaxation
10.30–11.00	Manual work
11.00–11.30	Reading
11.30–12.30	"Gym," games, swimming, etc.
12.30– 2.00	Luncheon and rest
2.00– 2.20	Drawing
2.20– 2.40	Sense training
2.40– 3.00	Games
3.00– 3.15	Physical work
3.15– 3.30	Folk dancing or corrective exercises
3.30– 4.00	Story dramatization.

All periods except for meals and manual labor are very brief. It is impossible to hold interest in these children, since this type of child can not concentrate for any long period.

The above program should be used as a guide only. It must be adapted to the abilities and needs of the group. Most school systems do not possess facilities for carrying out that part of the plan devoted to training the boys for heavy manual labor. One of the best teachers in this work, has the habit of suiting the activity to the minute, and since it is a question just how much "book learning" may be actually assimilated by these pupils, her principle is the best one to work upon, provided the teacher has had suitable training, experience, and initiative. One must admit from the beginning that standardization is almost impossible and one should work on that basis. Then only will success come.

QUALIFICATIONS FOR THE TEACHER OF SUBNORMALS

1. *Personality.* She must be a very skillful, wide-awake, facile, inventive type, constantly seeking to improve her methods. She must be able to take her pupils as they are and not as she would prefer them. In temperament, one must demand a type, patient and kind, always absolutely calm and well-controlled, never a "worrier." She must so perform her classroom duties that no amount of prevarication by her pupils can create

[1] Holmes, Arthur: *loc. cit.*

doubt in the parents' minds as to her treatment of her group. On her initiative depends the success of the class.

2. *Training.* A course in normal school or college is a prerequisite. She must avoid training in institutions for the feeble-minded lest she become "hospitalized."

In addition (and this is compensated for by her extra pay) she must have special courses to give her knowledge of all of the following subjects unless another teacher definitely cares for certain phases.[1]

(*a*) Methods of special class training.
(*b*) Manual work.
  1. Basket weaving, raffia work, clay and sand modelling, drawing, water color work.
  2. Bench work in carpentry.
  3. Rough manual labor (a male teacher would usually care for this).
  4. Skilled work such as millinery, etc.
(*c*) Mechanics and Machinery.
  1. Specialized according to local industrial activities.
(*d*) Corrective gymnastics.
(*e*) Hygiene.
(*f*) Speech training.
(*g*) Psychology of subnormal children.
(*h*) Sociology.

Relationships with the Parents of Subnormal Children

Many schemes have been evolved for the education of subnormal children. But it should be remembered that parents are most sensitive about such children and will resent certain low-grade manual activities, probably the best for the child, but which parents consider carry the stigma of lack of intelligence. The public is not as yet educated to the idea that such children must not be considered necessarily a blot on the family escutcheon. Frequently the criticism is heard that all that the children get in these classes is basket work, and other manual arts, although the parent has sent the child to school to learn something about books. A campaign of education, plus tactful handling of the situation, will undoubtedly remedy the difficulty. At present, heavy manual labor such as carrying bricks or sand is not approved by parents who prefer a "higher career" for such children.

Mental out-patient clinics and mental hygiene clinics are valuable chiefly in hospital follow-up work, in released or paroled mental cases but may be used for emergency examinations as well. At present, out-patient clinics are more concerned with mental disease than with retardation.

In the case of certain children needing supervision, not of the hospital type, but of social type, the various social agencies are helpful. Sometimes certain organization of the type of the Rotary or Kiwanis Clubs will establish a "little brother" movement and assume certain responsibilities and give valuable aid in mild cases. Such work is very discouraging to those who

[1] Holmes, Arthur: *loc. cit.*

undertake it. Persons who wish to participate in it should take the courses provided by the sponsoring organizations.

The incidence of cases of mental deficiency will vary with the type of population, being greatest in industrial cities. The yearly number is fairly constant because the children are not examined till they are three years retarded, except for special reasons. Any program must depend therefore, on the number of such children in the school system. The detailed program must depend on the grade of retardation.

Unquestionably the basic plans and the plans for expansion type of education are very satisfactory and the problem will be exceptionally well handled as soon as school systems are able to catch up with their lists of retarded pupils waiting for clinic examination, and take care of the normal increase of such pupils per year.

In this mental program may lie the solution of the difficulty of securing persons for the lower grades of manual labor. The adjustment of the child to its earning ability and capacity is of the greatest economic import.

Summarized, these special classes for backward children (1) will permit a higher type of production in the regular classroom, the unfit being placed in groups of their own mental ability; (2) will decrease the likelihood of the mentally deficient child becoming an economic liability, by teaching him to earn a portion of his living.

CLASSES FOR GIFTED CHILDREN

To educate gifted children healthfully and effectively, it is necessary, first, to understand the material with which one is dealing. Popular tradition has described the "bright" child as asocial, unhealthy, and of limited future in any field except research and education. Geniuses of the type of Edison, Vail and Ford were believed to have won their success through strenuous, long-continued effort (which may be true). Some parents have felt that too bright children (although preferable to backward children) were not wholly desirable offspring because bright children (according to tradition) were considered to be: (1) asocial and impractical; (2) nervous; (3) school and family problems frequently; (4) likely to retain these qualities when grown up. The healthy "normal" or average child of good social traits has seemed to many parents to be the ideal offspring.

The educator has known for years that certain children, apparently brilliant, were just as much school problems (although of a different sort) as backward children. The backward children were studied, and means were found for improving educational methods for these individuals of low mentality. Until recently, the bright child has not been understood and has been mishandled. His well being has aroused little general interest.

Various methods have been devised for educating the gifted child. These have included such plans as: (1) Enriching the regular classroom studies by collateral reading and other extra work. (2) Allowing the bright child to proceed at his own pace, by assigning blocks of work to a class and examining each child on the block or program of work, when he was satisfied that he was prepared for the examination. (3) Skipping grades, or extra promotions,

which plans are really a modification of (2). (4) Classes for gifted children. Phillips Exeter Academy and other schools were running "rush sections" in 1911 and earlier. (5) Schools catering to bright children only. The average private school in New York City today caters to children who would class as superior, at least, in Fernald's table for interpreting IQ's (see page 320), *i.e.* 110 or more.

Terman's[1] Study of Gifted Children

In order to determine in a scientific manner, just what sort of individual the gifted child actually was, Terman and his associates made and published a study of one thousand gifted school children and about four hundred gifted high school pupils, following them for two years. In both groups outstanding characteristics existed. The children studied were in California.

Outstanding findings in this study of interest to the health worker are:

Racial (data was based on grandparents). In percentages of the total, the racial stocks occurred in the following order; English, German, Scotch, Irish, French, Jewish of various nationalities (the total Jewish exceeded the Irish and the French). There was a great deficiency of Latin and negro ancestry.

Birthplace of parents. Half of the parents were born in cities of ten thousand population and over.

Ancestry. Many parents and grandparents had held positions of responsibility and some were found in Who's Who.

Vital statistics. Exclusive of miscarriages, the average of births to mothers who were 45 years or older was slightly over three, as compared with 4.7 (Galton) for English men of science fifty years ago, 5.45 (Ellis) for English men of science, and 3.67 for the average size of family of the grandparents.

Health and physical history. The children's health was usually good, even during the first year of life. Dentition, pubescence, and menstruation occurred somewhat earlier among gifted children than in an unselected group. The teeth of the gifted group received better care. Mouth breathing was reported only one-third as frequently as among an unselected group, but more than half the gifted group had undergone tonsillectomy as compared with one-fourth among the unselected children. Defective hearing was two and a half times as frequent among the control group, but defective eyesight was about one quarter more frequent in the gifted group. There was less nervousness and stuttering among the bright children than among the controls. "Excessive timidity" and "tendency to worry" occurred about equally in both groups.

Health habits. The dietary and the hours of sleep per day, were more correct than in the unselected group. The time spent out of doors daily by gifted children was about three hours for boys and two and a half for girls.

Medical examinations.[2] In the opinions of Dr. Moore and Dr. Bronson who made the examinations "On the whole the children of this group are physically superior to unselected children of corresponding age in the school

[1] Terman *et. al.:* Genetic Studies of Genius, Vol. I, Mental and Physical Traits of a Thousand Gifted Children, Stanford University Press, 1925. Material used by permission of author.

[2] Terman *et. al.:* Genetic Studies of Genius, *loc. cit.*, p. 251.

population." "The physical superiority of the gifted group is indicated by the higher average of nutrition and by superior stability, physical and mental." (Moore.) Dr. Bronson stated: "The examinations of the gifted group were the most satisfactory of any series of examinations I have conducted. The quickness of the children in comprehending what was desired of them in the various tests was a delight." . . . "*The home care, cleanliness and health habits, such as diet, hours of sleep, etc., indicated superior intelligence on the part of the parents.*" (Italics are ours.) "The greater number of the defects recorded in my reports were minor in degree and such as are found in all civilized peoples. If our standard were as strict as that which we apply to blooded stock, we would find physical perfection in the human race very rare after early infancy." (The experience of the authors in the Horace Mann Schools has been similar to Dr. Bronson's and Dr. Moore's.)

Educational history. Most children were accelerated. The "thought" subjects were handled better than mechanical studies (such as manual training) and games and sports. There was superior ability in arithmetic; somewhat less in music, dramatics, drawing and painting. "The indications[1] of superior intelligence most often noted were quick understanding, insatiable curiosity, extensive information, retentive memory, early speech, unusual vocabulary, etc. There was an unevenness of ability in different subjects which indicated that "each child must be regarded as a uniquie individual with specific mental mechanisms."[2] Interest was greater in abstract than in practical subjects. The gifted children read very much more than the control group.

Play interests and social interests. The gifted children tended to prefer the association of individuals older than themselves. They were acceptable to such companions. Gifted children cared less about social or competitive games than the control children, the girls preferring quiet activities even more than did the boys. Gifted children were teased no more than other children, but they were sometimes regarded as "queer" or "different" by other children.

Trait ratings. The control group excelled only in mechanical ingenuity. The gifted children excelled in intellectual, volitional, emotional, moral, physical, and social traits.

High school group. The proportion of high scoring girls decreased. The occupational choices were professional, such as teaching for girls, and engineering and science for boys.

The check-up in two years showed that the gifted group had gained in such traits as social adaptibility and breadth of interests.

From Terman's evidence, it is apparent that the gifted children are leaders in everything except mechanical ability. In certain cases of Hollingworth's, children of very high IQ's have been unable to attain the highest possible intelligence test ratings for precisely this reason. In a small series of cases, Hollingworth confirmed Terman's conclusions regarding the

[1] Terman *et al.*: *loc. cit.*, p. 287.
[2] Terman, *et al.*: *loc. cit.*, p. 361.

physical well-being of gifted children using height, weight, and hand grip as standards.

If these children are leaders already, then they may be expected to be local and national leaders in the future. Hence, every method possible should be used to promote their physical and mental welfare.

Education of Gifted Children

In matters of education Terman[1] has urged that:

1. Industrious habits should be inculcated.
2. "The mind should be allowed to develop at its natural rate, without artificial stimulation." Forced culture breeds priggishness and leads to disappointment in other ways.
3. Parents and teachers "give information when it is called for and help the child to help himself."
4. Intellectual initiative should be cultivated.
5. The best books should be provided in large variety.
6. Amusements should be of a high quality and should provide both social training and relaxation from mental work.
7. The vocation should be selected upon the basis of interest and to a less degree upon specialized talent.

Mental Hygiene of Gifted Children

The mental hygiene of gifted children is most important, because of their mental capacity. They probably develop traits more rapidly than individuals of less mentality. The handling of parents is exceedingly important, since many parents are likely to harm the child's personality through exploitation of the child as a genuis. For this reason, many schools will not give the parent an exact report on the results of mental tests, but merely state that the child is average, superior, or did unusually well. Hollingworth, in reporting results to parents often uses the following classifications,[2] and makes her report "about ten (or some other tabular number) children in 100,000 equal or exceed this rank."

General intelligence.

"Grade 1 most rare—about five to ten children in 100,000 equal or exceed this rank
Grade 2 highly gifted A—about 30 children in 100,000 equal or exceed this rank
Grade 3 highly gifted B—about 90 children in 100,000 equal or exceed this rank
Grade 4 very superior A—about 250 children in 100,000 equal or exceed this rank
Grade 5 very superior B—about 500 children in 100,000 equal or exceed this rank
Grade 6 superior A—about 1,500 children in 100,000 equal or exceed this rank
Grade 7 superior B—about 7,500 children in 100,000 equal or exceed this rank
Grade 8 high average—about 25,000 children in 100,000 equal or exceed this rank

A variation of this statement[3] is found in the following table:

[1] Terman, L. M.: Suggestions for the Education and Training of Gifted Children, Stanford University Press, 1921.

[2] Terman *et al.*,: *loc. cit.*, p. 10.

[3] Terman, L. M.: The Stanford Revision and Extension of the Binet-Simon Scale for Measuring Intelligence, Warwick and York, Baltimore.

Of the combined distribution for all ages from five to fourteen,
"The highest 1 percent reach an IQ of 130 or above
The highest 2 percent reach an IQ of 128 or above
The highest 3 percent reach an IQ of 125 or above
The highest 5 percent reach an IQ of 122 or above
The highest 10 percent reach an IQ of 116 or above

The mental hygiene of gifted children can not be considered without full knowledge of the traits exhibited by "bright" children and of the educational methods planned for such persons. Physically, the problems of the gifted are similar to those of normal or backward children, except that cooperation of parents in matters of health is better in the case of gifted children. Mental health can not be attained by the gifted child without proper social and educational adjustments. The problem, then, is probably more for the educator than for the health worker. Expressed in another way, it may be stated that the general health program of a school is more likely to be suitable for the gifted child, than is the educational program intended for the average pupil. Mental health of the gifted child is best assured through proper educational adjustments and these are based upon the association of and competition between children who belong to the superior group. By this means asocial traits are avoided. Otherwise the mental hygiene of the home and classroom has the same underlying principles as for any other children (see page 540).

One of the most difficult situations to handle is where the gifted child is of superior intellect to one or both parents and dominates them. Mental hygiene clinics handle such problems well.

Conservation of the Health of Gifted Children

Because of a tendency toward lack of interest in outdoor games and in exercise in general (perhaps due to the diversity of interests of the gifted child), the physical education program must be well-developed in special classes for gifted children. Sports are much more successful when the members of the group compete and associate with individuals of their own intelligence. They understand the games much better than other groups of children. Because of their superior mentality a few gifted children become excellent athletes, if their interest is aroused sufficiently. Examples are found in preparatory schools and colleges of the better type.

Comprehensive periodic health examinations, with correction or treatment of defects discovered, as in all school health programs, are necessary. In general the parents of gifted children provide their offspring with more healthful living conditions and see that these children live more healthfully than other children. Such parents also are more likely to cooperate with the school health authorities by providing adequate medical treatment than are the parents of children of average or low mentality.

FRESH AIR CLASSES

Although the purpose of these classes, at first thought, seems to be and is primarily part of the fight against Tuberculosis, the membership may consist

of a much greater variety of children when facilities for these are available. Most severely run-down and undernourished children are eligible and derive great benefit. The conditions of air and temperature which experience in open air classes has demonstrated to be favorable for the tuberculously inclined and undervitalized children, should be made available for all children as far as school conditions can be controlled for this purpose.

History of Fresh Air Classes

Underlying the fresh air school is a recognition of the urban tendencies of the human race with its problems of increasing density of population.

The movement began in 1904 in Charlottenburg, a suburb of Berlin, *Germany*, when an "Open Air Recovery School" was instituted to give children who were physically debilitated an opportunity to be taught and to recover their health at the same time. The first session was of three months and although the time in school was only half as much as that of the regular school pupils, there was no falling behind in scholastic progress. The remarkable success of the project resulted in an increase of such accommodations locally, and other towns in Germany rapidly adopted the idea.

A less successful, but nevertheless much-approved, open-air school was opened in *London* in 1907 in a piece of woodland adjoining Bostall Woods. In 1908 three such schools were opened in London.

In the *United States*, the first school of this type was opened in 1908 in the City of Providence, Rhode Island, while a little later in the same year Boston established a "School of Outdoor Life" in one of its parks. In January of that year New York opened its first school of this type on an abandoned ferry-boat and in the following summer Chicago had its first representation. At the present time open-air schools of some type exist in more than 130 cities and the number is increasing.

In *Canada*, the Heather Club Pavilion was opened in 1910 upon the grounds of the Hospital for Sick Children in Toronto. It was for tuberculous children, was open from six to seven months in the year and at present accommodates fifty. Hamilton opened a preventorium and outdoor school for twenty children on the grounds of the Mountain Sanatorium for all the year round use. Montreal had its first class in 1912—all these were in connection with hospitals. In May, 1913 the first actual school was instituted at Victoria Park by the Toronto Board of Education and was for four classes of children:

1. Those who had had tuberculosis;
2. Those who had tuberculosis in the home;
3. Those who had an hereditary tendency to tuberculosis;
4. Those who were anaemic, ill-nourished or had poor home conditions.

Italy. Here the plans include:

1. True open-air schools.
2. Outdoor excursion schools.[1]

[1] MacDonald, N. S.: Open Air Schools, p. 54, McClelland, Goodchild, and Stewart, 1918. Similar material was available in a federal bulletin (now out of print and unavailable), "Open-air Schools" by Kingsley and Dresslar. Bulletin, 1916, No. 23. Department of the Interior, Bureau of Education, Washington, D. C.

Switzerland. Rural population predominates in this country and the need is less imperative. Schools exist at least at Lausanne, Geneva, Neuchatel, Bischofszell and Zurich. The open-air type of school is used. Tuberculous children are excluded.

France. The first school was opened in Lyons in March, 1907, when 35 pupils were chosen from 400 candidates.

Denmark, Norway, Sweden, Holland, Austria-Hungary. In these countries the work is largely conducted in connection with summer vacation colonies. In rare cases these colonies have developed in Forest Schools and are conducted on the same plans as in England and Germany.

NAME
surname first.....

ADDRESS.....

SCHOOL.....Room Number.....

FOREST SCHOOLS Date.....

To the Parent or Guardian:-

The Board of Education conducts special open air classes in Victoria Park and High Park from May until the end of October where children who need to be built up physically may secure all the benefit of nourishing food, fresh air, and healthful exercise, at the same time carrying on their studies, all under the supervision of a teacher, nurse, and physician. The children are required to attend regularly every day including Saturdays and holidays (Sundays excepted).

The School Medical Officer recommends that your child..... named above be given the privilege of attending .....Forest School provided that you make written application on the following form:

APPLICATION FOR ADMISSION TO FOREST SCHOOL

I hereby apply for admission of the above named child..... to the Forest School as recommended and agree that attendance will be regular if application is accepted.

Parent's Signature.....

DEPARTMENT OF PUBLIC HEALTH,
TORONTO

FIG. 149. 4″ × 6″. Application for forest schools.

Outstanding plans for fresh air groups. New York City has grouped Fresh Air classes under three heads:

(*a*) Outdoor classes for pulmonary tuberculosis cases. Located at day camps and sanatoria. Supervised by the Bureau of Preventable Diseases of the Department of Health and private organizations.

(*b*) Open-air classes for children exposed to tuberculosis at home or where there has been a death from this disease; arrested cases of tuberculosis; malnourished children; children who become tired easily or show languor or fatigue before the end of the day; those suffering from nervous disease

except chorea; children frequently absent because of colds, bronchitis, etc.; cardiac cases recommended by private physicians as being proper cases for these classes.

(*c*) Open-window classes for normal pupils. Windows are kept open. Rooms are maintained at temperature ranging from 50 to 65 degrees. These classes are organized or discontinued at discretion of principal. There is no special supervision over these classes.

NAME
surname first.....

ADDRESS.....

SCHOOL.....Room Number.....

Date.....

ORDE ST. OPEN AIR CLASSES

To the Parent or Guardian:-

The Board of Education conducts special open air classes in Orde St. School where children who need to be built up physically may secure all the benefit of nourishing food, fresh air and healthful exercise, at the same time carrying on their studies, all under the supervision of a teacher, nurse, and physician.

The School Medical Officer recomends that your child..... named above be given the privilege of attending Orde St. Open Air Classes provided that you make written application on the following form:

APPLICATION FOR ADMISSION TO ORDE ST. OPEN AIR CLASSES

I hereby apply for admission of the above named child..... as recommended, and agree that attendance will be regular if application is accepted.

Parent's Signature.....

DEPARTMENT OF PUBLIC HEALTH, TORONTO

FIG. 150. 4″ × 6″ card, application for open air class.

Standard of admission to fresh air classes. No active pulmonary case is admitted. Children needing this special care are:

1. Those with closed tuberculosis exposed to an open case at present or recently.
2. Those with closed tuberculosis in any organ, without known exposure.
3. Children with no evidence of tuberculosis but who have been recently exposed to an active case.
4. Children who are thin, frail, anemic, nervous, always tired, or have frequent colds, giving a reaction to tuberculin but with no demonstrable t.b. lesion.
5. Children who have had tuberculosis.

To these may be added:

1. Children who have or recently have had chorea;
2. Children who have cardiac disease;
3. Children who are convalescing from one of the severe respiratory tracts diseases;
4. Children who are thin, frail, anemic, always tired or nervous, without any definite cause.

Ferry boat class. New York, in Dec., 1908, established the first open-air school in an unused ferry boat, the Southfield. It differed little from other open-air schools. This plan is still in use in New York City.

Roof type. The Horace Mann School of Teachers College, Columbia University, New York City, has two open-air rooms on the roof. They are built of concrete and steel. Each room is closed on three sides only, the south side being entirely open and is provided with a drop-curtain in time of storm. Floors are of wood. Indoor toilet rooms are provided, also an indoor room where the children may go to get warm if necessary. Movable furniture is used. There is an open space on the roof for play and recreation. A special wind-proof robe with hood, and felt boots is the protective costume used in winter. Cots are provided for rest. This class contains normal children, underweight children and nervous children.

FIG. 151. Open air class. Horace Mann Elementary School, New York City. Note parka, hood, and boots.

THE PROVIDENCE PLAN

This was the first fresh-air school project in United States and was begun in an unused school house. One wall of a four-sided school room was removed and windows substituted. These windows extended from near the floor to the ceiling, with hinges at the top and with pulleys permitting the lower ends to be raised to the ceiling.

Desks were arranged so that the fresh air came over the children's backs. Movable desks were used.

Heating was by means of a cylinder stove. Blankets, bags, and soapstone foot warmers were used as indicated. Low felt shoes were exchanged for the leather ones when the latter had become damp on the way to school.

Program includes:

9 a.m. Arrival;

10:30 Soup;

12:00 Lunch of hot pudding, such as rice or tapioca, served with cream, and hot chocolate or cocoa made entirely with milk. Many children also brought potatoes or bits of meat which were cooked and added to the lunch.

Personal hygiene. Before eating, each child washed his hands and face thoroughly, combed his hair, and, after eating, cleaned his teeth. The need of the individual drinking-cup and tooth brush was emphasized.

Instruction. The school began as an ungraded one with pupils from grade one to grade six. Lessons were somewhat similar to those in regular school and the soapstone warmers made possible ciphering, writing and drawing, even in the coldest weather.

Physical exercises were considered important and consisted of exercise with rods, marching, various movements, many of which took the form of play.

Gardening was done in the Spring. The plan was most successful.

Outdoor School

In United States, the first *fresh-air* school was in Providence as we have shown but the first *out-door* school was in Boston, in Roxbury on Parker Hill and was known as the "School of Out-door Life" and was for children suffering from tuberculosis. It was opened in July, 1908 under private auspices but was taken over in the fall by the school system. At first it was located in a tent in an apple orchard of good size on a hilltop. Equipment was a lean-to kitchen, dining room, shower bath and a number of tents for shelter. In 1909 the school was transferred to Franklin Park where an outdoor school room was erected on the roof of a large building. Canvas curtains on four sides could be lowered in stormy weather. On the lower floor of the building were the dining-room, kitchen, etc., with rest room on the second floor. The classroom itself was not heated but blankets and bags were furnished. Attractive decorations were confined to the first two floors of the building.

Schedule.

8:30 Arrival and breakfast of cocoa, bread and butter, stewed fruit and a cereal. From then till dinner there were twenty-minute periods of regular grade work.

12:30 Dinner of either braised beef, stew or roast; a vegetable, fruit and milk. The children helped to set the table and serve the food. After dinner, rest for one hour, then school work till 4.30. Supper of milk (all they could drink), graham wafers, or ginger snaps.

5:00 Children returned home.

The best materials were used in preparing food; great care was taken to have pure milk; and the best of butter was used in cooking.

Personal hygiene. The children were required to wash their hands and faces before each meal and brush their teeth afterwards. Arrangements were made for bathing once a week.

Medical service. Temperature and weight were taken every day. The nurse in charge took them to dentists, eye clinics and other hospitals as needed.

The Present Boston Plan

Type of child. Anemic, malnourished, glandular, undersized, pretubercular cases, also cardiacs, especially those with failing compensation.

Equipment.

Classroom

1 Moulthrop desk for each
1 blanket for each child
1 chest, with lock and key, for blankets
1 cloth screen for window
steamer chairs

Kitchen

1 sink, with hot and cold water
1 gas stove
1 table
1 large cabinet for utensils
1 enamel cup for each child
1 teaspoon for each child
2 trays
1 large preserving kettle
1 ladle
1 dustpan
1 dish drainer
1 mixing bowl
1 mixing spoon
2 canisters for cocoa and sugar
A supply of paper napkins, dish towels, oilcloth, soap, matches, scouring powder.

Temperature. As near 55°F. as possible.

Organization. Class is not over two grades, with not over 24 pupils for classes of two grades or thirty for classes in one grade.

Medical supervision. Each pupil is carefully examined by the school physician when admitted to the open-air class and every six months thereafter.

School physicians visit classes weekly, and school nurses make daily visits. Each pupil is weighed and measured monthly and a record of the result is kept.

Physical defects are corrected and dental work completed as soon as possible.

Follow-up work. The school nurse visits the home, familiarizes the parent with the aims and purpose of the class, gives necessary instruction regarding the home care of the child.

Philadelphia Plan

Buildings are of the roof and bungalow types. Medical examinations are at least once a month—oftener if the case is tubercular. Admission is through the Board of Health. Cases are watched constantly for signs of

active disease. Their weight is taken every two weeks; temperature and pulse are taken daily. The nurse makes home visits. Special attention is given to the discovery and correction of physical defects.

Organization. The children carry on their regular school work. Room temperature ranges from 50 to 60°F.

Routine.

8.45 School opens. Classes are held till ten.

10.00 Lunch of milk, crackers, oatmeal, cocoa, etc.
Classes till noon.

12.00 Noon. A meal of hot, well-cooked vegetables, meats, soups, bread, butter and dessert.

1.00–2.00 Children are put to bed in out-door dormitory—blankets and individual cot.

2.00–3.00 Classes.

3.00 Meal similar to that at ten is furnished.

Personal hygiene. Teeth are brushed after each meal. Shower baths are given twice a week.

Instruction. The essential work of all grades is given and the claim is made that the children return to the class-room able to compete with the normal children.

Exercise. In each room physical exercises are given for the purpose of gaining correct posture and greater lung capacity.

Cleveland Plan

Admission is for anaemic and sickly children and those exposed to tuberculosis. Eligibility is determined by doctors and nurses who go through the regular school classes.

Medical service. A complete physical examination is given on admission. Underweight and malnutrition are held to be sufficient cause to remain in class. Temperature is taken twice a month but if it is over 99°F., it is taken every day till normal. Weight is taken once a month and a loss of two and one-half pounds is reported to the doctor.

Rest period. A rest period for all is twenty minutes but may be increased if desirable.

Lunch. Twice a day and consists of milk, cocoa, and graham crackers.

Charlottenburg Plan

The Waldschule of Charlottenburg was opened in 1904 in a forest three miles from the city about seven minutes walk from an electric railway. The air was fresh and free from dust and the forest stillness favored rest. One border of the site was a bank which formed a slope upon which the children could play. Three of the buildings were sheds—one being open on the south side and closed on the other—and were used during rainy weather for the afternoon rest period. Two other sheds were closed on all sides and provided with heating arrangements so that they could be used for instruction in very cold and unpleasant weather. Both were portable buildings. The last two

of the five buildings were very large sheds open on all sides and fitted with tables and benches and were intended for meals and for work during rain or too bright sunshine. There was also a number of small sheds accommodating five or six children, for similar purposes; also some sheds used for locker rooms, waterproofs and individual rugs.

Schedule.

8 a.m. Arrival on foot and special electric cars.
Breakfast consisting of rice or porridge and bread and butter.
Classes began—periods were one half hour with an interval of five minutes every half hour. Instruction was reduced to essential subjects and was never for more than two consecutive hours.

10 a.m. Luncheon of milk, bread and butter.
Following this they played, performed gymnastic exercises, did manual work or read.
This schedule was reversed with another group, thus keeping facilities constantly in use.

12:30 Dinner of meat, potatoes, green vegetables, and on Sundays, also pudding.
After dinner, sleep for two hours in a steamer chair.

3-4:00 p.m. Classes.

4:00 Milk, bread and jam.

4:00–6:45. Play.

6:45. Supper, after which the children returned home.

Transportation. Where needed, the municipality or the street car company furnished the fares.

Instruction. Informal methods were used. Nature study was of plant, animal and insect life, first hand. Geography was taught by drawing maps in the sand. Arithmetic was partially taught by actual measurements with rule and tape. Poetry and songs descriptive of forest sights and sounds were used. Singing and gymnastics were prominent. Gardens were cultivated —both flowers and grains; vegetables and common food plants.

Girls spent some time in needlework, wove baskets out of grass, and helped to prepare vegetables for meals, also in small classroom duties.

Medical regime. The children were carefully examined and selected. Special attention was paid to heart, lungs and general conditions. The school physician had charge of the treatment. The school nurse kept watch of the weight; saw that each child had three baths a week, hot and cold, or shower as prescribed by the doctor—brought all who needed his care to his attention. She also served the five meals a day.

Springfield Plan

At present one of the most satisfactory groups of fresh-air classes in a public school system is in Springfield, Mass. The two classes, totalling fifty pupils, are located in a building in the center of the city, in two rooms in the south-eastern wing. The "open-air" classes are entirely separated from

other classes, having their own toilets, dining room, kitchen, and roof playground. The baths are in the basement.

The grades are from One B through Junior High School Two A.

Admission is on the basis of a thorough physical examination. The groups admitted are tubercular cases of the closed, contact, or pretubercular types; cardiacs; chorea cases; malnourished and generally debilitated children.

The personnel consists of two teachers, a fulltime nurse for the whole building (including other classes than fresh air groups), a part-time doctor, a bath nurse, and a cook.

The children have fresh air and sunshine as far as the weather permits. Heat is provided on the coldest days, since the temperature is not allowed to go below 40°F. and 45 to 50°F. is considered better. This extra heat prevents the children becoming chilled in cold weather, as does the use of outside clothing, such as overcoats. Warm stockings and fleece-lined boots are provided by the school when needed.

The curriculum is a modification of the standard for the school system, the "gems" being selected and taught. It is definitely understood that the emphasis shall be placed on building up the pupils physically, and educational concessions are made to accomplish the purpose, (the real justification for these *Health First Classes*).

In addition to health examination on admission, each child is examined yearly by the physician; weighing is done weekly; heights are taken four times a year; the school dental clinic attends to teeth; the city oculist examines eyes and the Child Welfare Association helps to arrange for the purchase of glasses and for necessary operations.

The feeding program is excellent. Upon arrival at 8:30 the children are given cocoa, or hot cereal and milk. Milk is served in the middle of the forenoon. At noon, a regular dinner is provided. The menus are simple, wholesome, and full of variety. The cost is about eight cents per child per day and is met by the Board of Education.

Following dinner, an hour of rest is scheduled. Absolute quiet is expected; sleep is encouraged and children are not wakened for any class which occurs while the children are asleep.

Residential Open-air Schools

The residential open-air school was first opened in England at Bermerside Home in Halifax. The plan was similar to the Charlottenburg one except that canvas couches were used for rest and the program was not interrupted by periods of bad sanitation and feeding over night and week-ends.

Other Plans

The Open-air Classroom was used as the most satisfactory and convenient form of open-air education for all weathers and all children. Many English schools were constructed to permit this condition at will.

Playground Classes for physically delicate children were inaugurated in London in 1909. They are usually held in a park if possible.

The Country Holiday Schools provide short periods of residence in the country for debilitated town children.

The Country Holiday funds are used for brief summer stays in the country.

Equipment and Administration of a Fresh-air Class

1. Building. Frequently a portable building is used. The Monitor type of construction is preferable, since the ventilation is best. A schoolroom may be used when available, and may be specially adapted by swinging windows, closets, etc. The main necessity is to secure plenty of fresh air. Fresno, California, adopted an inexpensive building, with canvas sides which could be raised.

The more nearly the out-of-doors is approached the better. The climate must be considered. Provision should be made for a warm room into which the children may go when cold, or at least some means of providing extra warmth must be available as needed. Soapstones are helpful. Temperature is between fifty and sixty.

2. Equipment. Essentials are portable furniture, cots and individual blankets, some means of heating the lunch, a few cooking utensils, the latter depending on how ambitious a food program is adopted; blankets are necessary and sleeping bags are desirable. The Horace Mann School uses a garment of wind proof cloth and felt boots; provides a drying room for children who come with wet clothing.

3. Policy. The school may be under the medical direction of any tuberculosis expert. Pedagogically it will of course be controlled by the school system.

4. Management. Fresh air, warm clothing and good food are unquestionably necessary for success. Proper personal hygiene, suitable living conditions, and correction of physical defects that retard growth and development add greatly to results.

5. The following requirements are desirable.

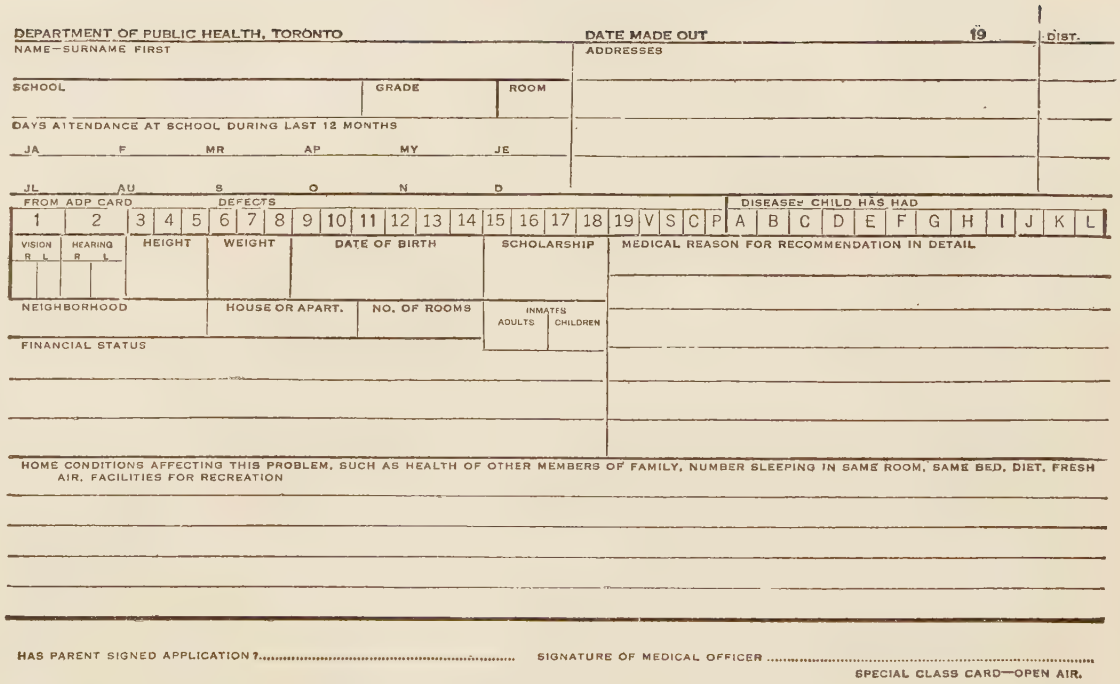
(*a*) *Medical attention.* A thorough physical examination should precede admission and should be repeated at least once a month, oftener if indicated; temperature should be taken and recorded at regular intervals at least twice a month and oftener as indicated; weight should be taken and recorded at least once a month, preferably once a week; height should be recorded at least once a term; correction of defects is desirable.

(*b*) *Rest periods.* There should be several per day. One good long period preferably after the large meal is needed. Cots are best.

(*c*) *Class periods.* Not over one half hour in length and preferably with a small rest period between, or a rest period after about, two hours of school work. The one session day avoids any home work at noon and assures rest.

Lunches. A hot lunch is needed about mid day. One hot dish may be sufficient. One or two milk lunches in addition, preferably one in the mid morning and one in mid-afternoon are desirable. If it is known that the children have but little breakfast before coming to school, other arrangements regarding food are necessary. The above represents the minimum.

6. Instruction. This should be in the essentials. There should be:


DEPARTMENT OF PUBLIC HEALTH, TORONTO

DATE MADE OUT 19 DIST.

NAME—SURNAME FIRST

ADDRESSES

SCHOOL | GRADE | ROOM

DAYS ATTENDANCE AT SCHOOL DURING LAST 12 MONTHS

JA F MR AP MY JE

JL AU S O N D

FROM ADP CARD — DEFECTS — DISEASES CHILD HAS HAD

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 V S C P A B C D E F G H I J K L

VISION R L | HEARING R L | HEIGHT | WEIGHT | DATE OF BIRTH | SCHOLARSHIP | MEDICAL REASON FOR RECOMMENDATION IN DETAIL

NEIGHBORHOOD | HOUSE OR APART. | NO. OF ROOMS | INMATES ADULTS | INMATES CHILDREN

FINANCIAL STATUS

HOME CONDITIONS AFFECTING THIS PROBLEM, SUCH AS HEALTH OF OTHER MEMBERS OF FAMILY, NUMBER SLEEPING IN SAME ROOM, SAME BED, DIET, FRESH AIR, FACILITIES FOR RECREATION

HAS PARENT SIGNED APPLICATION?..... SIGNATURE OF MEDICAL OFFICER .....

SPECIAL CLASS CARD—OPEN AIR.

FIG. 152.—Toronto, Ontario. Pupil's health and social record. Yellow card 5″ × 8″.

(*a*) Less time in formal teaching;
(*b*) Small classes, never over 25;
(*c*) Practical types of work;
(*d*) Less of the customary memory work;
(*e*) Combination of instruction with physical activity, to improve body more than mind, for the time being.

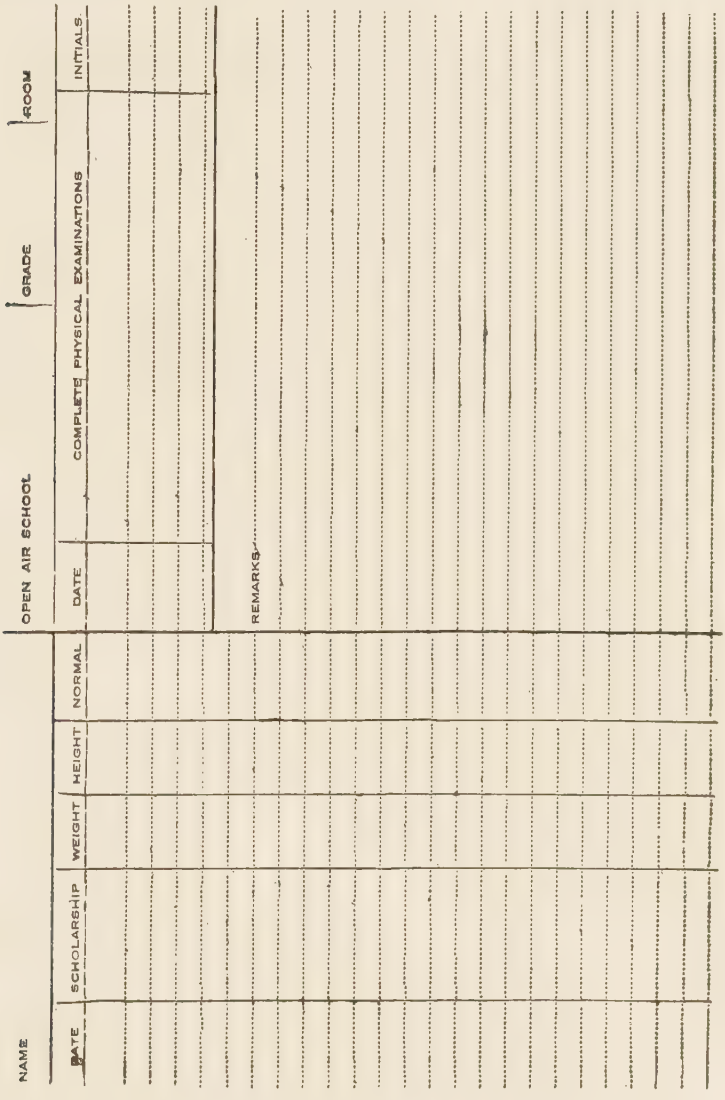


FIG. 152. Reverse side of pupils' health and social record, used in open-air classes. (*Continued.*)

History and geography can be taught from sand maps and from the use of models placed in such maps, as ships for ports, etc. For history—forts, castles and model villages can be made.

Arithmetic. This is taught through the collection of natural objects and through practical measurements.

Class talks may be on current events and other topics for conversation, and may be used as oral composition.

Nature study and gardening. This is possible only in the outdoor classes.

Manual training. Wood work often takes the form of carpentry; otherwise the work is the same as in indoor schools.

Modelling offers excellent possibilities for practical teaching of other subjects.

Literature, composition, singing and *needlework;* each has a place.

Whether the children can be kept up to grade is a matter in which opinions differ. Undoubtedly health must come first.

Personal hygiene. The children must wash hands and face before each meal and brush their teeth afterwards. Regular and frequent bathing is a necessity and should be done several times a week, perhaps in some cases under medical direction.

Follow-up. The teacher or nurse should at all time be thoroughly familiar with the physical status of each child. The home must be visited, the class explained and cooperation secured that the home may supplement the school. Home hygiene and diet may need to be demonstrated.

Physical exercise. Must be directed toward general health improvement plus increase in vital capacity. Each child must be considered as an individual.

Records. Must be kept. Height and weight may be kept on the usual charts.

Certain hints regarding management are valuable:

1. A room with two sides open always permits at least one side available for fresh air, even in storms or driving winds.

2. South or east exposure is best since it gives more warmth in winter.

3. A minimum of 50 degrees is best since the children do not usually feel the cold at this temperature. Lower than this may prove harmful. Sixty degrees should not be exceeded in order that the children may not be heated by their outer wraps.

4. If the children come to school wet, the class should be conducted as the closed type till the clothing is dry.

5. Several radiators are better than one in maintaining the temperature of 50, when needed.

6. When the season permits all classroom windows to be open, the children should dress no more warmly than in the ordinary classroom.

7. Physical exercise should be more frequent than in the regular room, emphasizing deep breathing, respiration and circulation movements.

RECORD CARD

Showing Conditions in Schoolroom and Results to Pupil

Name: School: Grade: City:
Age: Sex: Date record begun: Date record finished:

Underline following facts as they apply.
Type of School.
Open-air; open-window; area unobstructed; closed windows.
Exposure: N. S. E. W. Number of windows.
Temperature of room kept at . Breezes blow through room. Cheesecloth covers window openings.
Ventilating apparatus is about years old.
Graded; ungraded. School day from to .
Intermission from to . Rest period from to .
Rest on cots; beds; steamer chairs; at desks; out of doors; on roof; in open-window room; in regular schoolroom.
School equipped with bath; showers; dental clinic.
Extra feeding at school: breakfast; milk; cocoa; soup; crackers at ; lunch; hot; cold; lunch in afternoon.
Special remedial work for this pupil:
Recommended: Extra feeding: posture work; operation (T. and A.).
Performed:
Remarks:

Weight Record

Date	Age (yrs. mos.)	Weight (lbs.)	Date.	Age (yrs. mos.)	Weight (lbs.)	Date	Age (yrs. mos.)	Weight (lbs.)

If possible, weigh child without clothing, except for a slip. If weighed with clothing, remove shoes and estimate weight of balance of clothing; record weight and add "less ounces."
Height: At entrance (date:) in. Hemoglobin test: At entrance (date:)
Final (date:) in. Final (date:)
General observations: At beginning; during term; and at end, with reference to color, colds, cough, mental progress, disposition, absence from disease, general appearance.
Date: Attendance and absences:
Underline defects as cited by physician during progress of examination.
Diagnosis: Sex: Color: Age: years, months.
Inspection: Bright; dull; nervous; apathetic. Pallor. Fatigue.

FIG. 153. Massachusetts Form. From The Commonhealth Vol. 8. No. 1. Jan.-Feb., 1921.

Mouth: Normal; open. Cough. Mucous membrane: Normal; pale; cyanotic.
Lips: red; pale; herpes; fissures; scars.
Development: Good; fair; poor. Nourishment: Good; fair; poor.
General condition: Good; fair; poor.
Muscles: Firm; flabby. Paralysis. Co-ordination.
Head: Normal; bosses prominent; pediculi.
Nares: Clear; crusted; mucous discharge; spur; septum deviated; adenoids.
Tongue: Moist; dry; slight white coat; brownish coat. Breath: Sweet; foul.
Tonsils: Normal; large; buried; cryptic; inflamed; purulent; absent.
Teeth: Good; carious (number). Approximation: Good; poor.
Ears: Right ear: Drum normal; dull; retracted; bulging; cerumen; discharge.
Left ear: Drum normal; dull; retracted; bulging; cerumen; discharge.
Hearing: Right: Left:
Eyes: Right eye: Vision . Lids: Normal; inflamed. Discharge. Keratitis.
Left eye: Vision . Lids: Normal; inflamed. Discharge. Keratitis.
Pupils: Equal; unequal; react to light; distance. Motions: Normal; abnormal.
Strabismus:
Glands: Normal; enlarged; anterior cervical; post cervical; epitrochlear; axillary; submaxillary; bronchial; inguinal; thyroid. Few and large; many and small.
Pulse: Strong; medium; weak. Volume: Good; fair; poor. Rhythm: Regular; irregular.
Heart: Area; dulness; c. m. left midsternal line. Apex 4th; 5th; 6th.
c. m. right midsternal line. Space in nipple line;
c. m. outside nipple line.
c. m. inside nipple line.
Action: Regular; irregular. Sounds: clear; impure.
Thrill: Present; none. A^2: P^2:
Murmurs: None; soft systolic / loud systolic / diastolic } at { apex / pulmonic / aortic } tr. to { ant. axillary line. / mid. axillary line. / angle of scapula.
Lungs: Resonance; throughout. Respiration; throughout.
Abdomen: Normal; large; lax; distended; tympanitic; tender. Hernia: inguinal; umbilical.
Liver: Dulness, 5th space rib to costal border nipple line.
Spleen: Felt; not felt.
Extremities: K. J. present and equal; absent. Edema: present; absent.
Kernig: present; absent. Babinsky: present; absent.
Epiphyses: Normal; enlarged. Bowlegs; knock knees; club foot.
Skin: Smooth; rough; clear. Scars. Vaccination: present; absent.
Spine: Normal. Lateral curvature: right; left. Round shoulders. Kyphosis.
Scapulæ: Flat; winged.
Chest: Normal; barrel; flat; funnel; pigeon; Harrison's groove.
Feet: Arches: Good; pronated. Station: Normal. Gait: Normal.
Blood: If any test has been made, please record here. Hg. W. B. C. R. B. C.
Stain. Wassermann.
Mental test: If any mental test has been made, please record mental age as compared with actual age:
Is child retarded in school? How many years?
Weight: Stripped, lbs.; with clothing, lbs. Approximate wt. of clothing: lbs.
Height: inches.
Normal weight for age: lbs. Normal height for age: inches.
Approximate time given to this examination: minutes.
Name: Date:
Examiner:

FIG. 153. (*Continued.*)

8. Blankets must be individual, must be dry-cleaned at least once a term, and sunned and aired daily after use. They should be kept in separate compartments built after the plan of postoffice boxes, preferably in a closet off the school-room.

9. A similar post-office box arrangement for lunch kit is desirable.

The Teacher of a Fresh-air Class

The teacher should be chosen for her unqualified interest in health work. She must be in excellent health herself and continue to be so, that she may represent the embodiment of health to her pupils. Enthusiasm, patience, love of children, and some executive ability are desirable qualities. She should be well versed in the methods of health education, since health must be emphasized in fresh-air classes. Some course of the Normal Diagnosis type or its equivalent in experience is essential since she must be able to recognize any signs that the child is over-doing, and at once order rest. She must at all times be able to keep the classroom atmosphere both restful and cheerful.

Studies of Fresh-air Class Children

The following investigations are of interest:

1. At the Fielden Demonstration School in Manchester, England, the heights and weights of each scholar increased, there were fewer absences due to illness than in any other class in the school; the children grew rosy-cheeked and hardy; the pupils were as eager and alert at the end of the day as at the beginning; vitality was imparted to the whole curriculum. This was with healthy boys and girls in an open-air classroom. This should be compared with the Montclair results.

2. In Philadelphia in 1912, two groups composed of similar types were studied, each having the same number of bright, near-bright, and retarded pupils—an open-window classroom being used. Throughout, the open-window class was more successful in nutrition, physical improvement and mental alertness.

3. At the Horace Mann School in 1912–1913 remarkable differences were noted between two groups, the outdoor class proving much superior according to the usual standards.

4. The New York Public Schools began a similar experiment in 1914.

5. Montclair, N. J. In 1915, Mr. Don C. Bliss, then Superintendent of Schools, made an investigation of results attained in open window classes, making an attempt to check the special and control classes on three separate lines:

(*a*) Degree of nutrition, measured in terms of weight gained and weight lost;

(*b*) General health, as indicated by the number of children absent because of illness and total number of days lost thereby;

(*c*) Mental condition, indicated by the comparative amount of fatigue in the two classes, this latter being determined by tests given one-half hour

after the opening of school in the morning and again to the same class late in the session.

The weight periods covered November to March since open windows are the rule the rest of the year. Regarding nutrition, the results were inconclusive. The absences for colds, sore throats, and contagious diseases were greater for the open window classes. The open window classes showed a slightly greater initial ability to avoid fatigue but the curve was practically the same for both special classes and control. Bliss believed the discrepancy between his findings and those elsewhere was due to the admittedly remarkably good ventilation system in Montclair schools. The experiment then resolved itself into a comparison between warm, well-ventilated rooms and cold, well-ventilated rooms.

Experimenters have found that one can not compare two groups of essentially normal children and draw conclusions regarding pathological children. It is not particularly expected that the normal child would benefit remarkably from the regime, and actual comparisons could only be conclusive when two groups of children were compared who ordinarily would be placed in such classes. Considering the regime a therapeutic measure, one would expect the benefit to come to those who need it.

The experience in other cities has been practically universal that the fresh-air plan has the utmost merit and good results are forthcoming.

Results Attained by Fresh-air Classes

The open-air classes prove that the following results are practically attainable:

1. The checking of pulmonary disease in its early stages. This type of class is probably the most successful agency in dealing with incipient pulmonary disease.

2. The prevention of sequential pulmonary disease. The tendency of children is toward the generalization rather than localization of any pathological process.

3. The open-air school supplies opportunities for physical repair.

4. The open-air school nurtures debilitated children. The opportunity for medical treatment, good food and rest have a remarkable effect on the children.

5. For the normal child the open-air class offers the most favorable conditions for mental and physical welfare.

Since the prevention of control of pulmonary disease is the fundamental object of fresh air classes, it seems desirable to print the following:

Indications for Chest Examination for School Children

Chadwick believes that every school child should be given a thorough physical examination at the beginning of each school year. If this is impossible, as at present, they can all be weighed and measured.

We should select for examination the children who are ten percent underweight and all other children regardless of weight who appear to be in subnormal physical conditions.

Children in the last category will include those who are often absent from school on account of illness; those with frequent colds; those who cough, those who are nervous, fretful and irritable, and children whose dispositions undergo noticeable change as the work of the school year goes on; and finally the contact cases, or those known to be exposed to tuberculosis in their homes.

These examinations will classify the children as follows:

1. Those with positive signs and symptoms of T. B. (eight to ten percent according to Chadwick).

2. Those with signs and symptoms of T. B., but not enough to justify a definite diagnosis; *i.e.*, suspicious cases. (About five percent were in this group in his series.)

3. Those with diseases other than tuberculosis. The most common defects found in this group are enlarged tonsils, adenoids, goiter, bronchitis and chronic heart disease.

4. The negative group in which malnutrition is the most evident condition and no definite disease found.

He further subdivides the tubercular children according to whether these have good intelligent coöperative parents and good homes, and those who have poor homes and ignorant or careless parents.

CLASSES FOR SPEECH DEFECTS

Classes for speech defects are of two types: (1) part-time, for moderately severe cases; (2) full-time, for severe cases.

Gifford[1] employs the following classification of speech defects:

1. The nervous speech disorders, under which come stammering, stuttering, cluttering, and nervous hesitation.

2. Retarded speech in both normal and subnormal children.

3. Infantile substitutions not caused by mouth malformations.

4. Substitution of sounds or imperfect speech caused by malformations of the speech organs.

5. Voice defects, not organic.

6. Voice defects after certain operations, such as cleft palate or adenoid.

7. Imperfect speech through partial deafness.

8. Aphasia, sensory or motor.

9. Foreign substitution of speech sounds, caused by foreign environment.

10. Sluggish enunciation due to poor muscular coordination, which may possibly have been caused by certain diseases of childhood.

In the New York City Schools the following groups of defects were found to exist: (1) stammering and stuttering; (2) lisping; (3) lallation; (4) acute defective phonation; (5) foreign accent; (6) acute nasality; (7) aphonia; (8) deaf; (9) other defects such as chronic nasal twang, burring, monotone, guttural and high-pitched voices. The definitions below are based on those accepted in the New York City Schools. These were defined as follows:

Stuttering and stammering include cases who have a marked, halting utterance, characterized by inability to articulate or by unnecessary repitition of sounds, words, or phrases. About one-third of the New York group

[1] Gifford, M. F.: Speech Defects, J. A. M. A., Vol. 82, No. 21, May 24, 1924, p. 1673.

were in this class of defectives. Treatment is based on the plan of interesting the child in the visual image conveyed by a word or series of words rather than the word itself.

Lisping includes children who manifest an acute defect in the production of sibilant sounds. It is more common among girls because families sometimes consider it an attractive and desirable habit. Three fourths of the New York group had as causative factor lingual sluggishness, confirmed by habit; the other fourth were the results of dental malocclusion, hypertrophied tonsils, tongue-tie, or other organic defect, combined with habit.

Lallation is an acute lack of coördination of the lingual muscles, not uncommon in the speech of the mentally defective. Such cases require a reeducation of the central nervous system of the child as through tongue gymnastics and response work.

Acute defective phonation is the condition where the articulation of sounds (through habit) is so defective as to make the child's speech unintelligible.

Acute nasality is characterized by a marked omission of sound through the nose, when speaking, and is commonly caused by a cleft palate, blocking types of enlarged tonsils, tumors of the nasal passages, adenoids. In such cases the physical cause must be removed by proper means. Speech training must then follow.

Aphonia or loss of voice, is due to a lack of physical development of the vocal organs. Some children whose voices are poor need special training and this will bring the speech up to normal. Children from six to nine years old, who return to school after severe febrile diseases, often need special speech training under a skilled teacher, to avoid permanent injury to the organs of voice production. If neglected, such children may carry low (often gutteral) voices through life.

The combination of deafness and speech handicaps is one of serious import. Some of these cases have not lost their hearing completely but have not developed proper speech.

Monotone is a result of lack of responsiveness, conservatism, exclusive intellectuality, weariness or disease such as motor aphasia, in the convalescent stage, severe chorea, bulbar syphilis, progressive muscular atrophy with permanent damage to the muscles of phonation. Treatment is by singing lessons. Harshness is due to a mental state which finds expression through the normal vocal mechanism. Sometimes the cause is a fit of temper, as in mild cases; in other cases the cause is fatigue or nervous strain. Hoarseness has physical cause, and is due to inflammation. Medical treatment is necessary.

Hasty speech may be due to imitation; vividness in imagination; an attempt to avoid stuttering by speaking rapidly; interruptions, as where members of a family constantly interrupt each other in speaking. Treatment consists of annulling the causes and reinstating a normal inhibition.

Slovenly speech is unduly relaxed lazy speech and reveals mental state of defection, weariness, submission to a recognizedly higher power. It is often accompanied by slovenly attire and slovenly physical attitude. The

treatment consists in instilling self-respect by psychological, social and moral means.

Foreign accent is eliminated by special methods and is a matter for the educator and not the health system. Without correction, it may become permanent.

There is a marked decrease in the number of speech defects in the seventh and eighth grades because:

1. Children with speech defects are so handicapped by the inability to properly and clearly express their thoughts that they are retarded in the lower grades and therefore find it difficult to reach the upper grades.

2. Children so handicapped and retarded leave school and obtain working papers as soon as they have reached the necessary age or grade.

The cases of defective speech are handled as follows:

1. Mild cases are often given special attention by the class-room teachers. This emphasizes the necessity of training the class-room teacher in methods of curing mild speech defects and preventing the generation of more acute ones.

2. Moderately severe cases are given special instructions in classes lasting one half hour per day; different kinds of defects being corrected at different periods. General methods in breathing exercises, vocal gymnastics, corrective exercises and tongue gymnastics are used. Swift uses the phrases "word exercise" and "line exercise" for method use. In addition, individual instruction is given. In this manner the pupils are not deprived of their class-room work. This is similar to the plan used for teaching deaf children to read lips but keeping them as members of a regular school class.

3. The special class or school enrolls acute cases of stammering, lalling and similar defects, the pupils being isolated and receiving all their instruction from teachers who have had special training in these subjects, as in the case of the deaf.

Many of the members of such classes are gradually returned to regular classes.

Swift recommends the following standards for return to regular classes of children under treatment for stuttering and phonetic defects:

The stuttering groups, the ordinary treatment (described above) for cases of defective speech, but more gradual release, plus observation for two years.

The phonetic groups, "After the new pronounciations have become easy, automatic, and unconscious in every day conversation, and after this condition has lasted a month." Pupils should return occasionally to the class for tests and further advice—at first every two weeks, and then after two or three months, every month for a year. If mental defectives, such cases are usually non-returnables. In some cases Swift advises permanent and persistent vocal drill for two years and observation for two years longer.

The *teacher,* aside from being endowed with the patience and sympathy which every special class teacher must possess, must have had a course of training in this special work.

Swift recommends the courses given at such institutions as Columbia University, Harvard, Ohio State University, Rush Medical School. Observation in a speech clinic is very desirable.

The teacher must learn the methods of examination and treatment adapted to this group and should know psychology and be trained in elocution and music.

The *ideal system of phonetics* for these defectives differs markedly from normal phonetics and this system must be learned.

In New York City in 1920–1921 twenty-six special teachers devoted their entire time to the correction of acute defects and the general improvement in the speech of children. Eight thousand seven hundred fifty-seven cases were treated, the majority being corrected or greatly improved.

Chicago maintains speech classes for special training and instruction under the guidance of a speech instructor.

Swift[1] believes this problem should be met in the kindergarten, or earlier if possible. He emphasizes the need of treating every child as an individual and he deplores any tendencies to depending on the same treatment for every case of the same disease.

Gifford concludes that treatment must begin as early as possible. Nothing is more harmful than waiting. The older the child the more firmly rooted the speech defect becomes. Where surgery is needed, it should be done at once. In light cases caused by imitation and where the increasing mental development of the child enables him to see and correct his own mistake —only in such cases is the defect outgrown. Waiting may destroy the child's morale, changing him into a warped, self-conscious and negative individual, full of fears which are sometimes repressed neuroses. All of these nervous speech disorders are curable if attacked in the right way by the right instructor. Their origin is psychologic and psychologic reeducation is their solution.

SIGHT-SAVING CLASSES

Present Practices in Handling Children with Defective Vision

1. Segregation in special classes of one of the following types:
   (*a*) Where regular academic work is done but with special equipment;
   (*b*) Classes emphasizing handwork;
   (*c*) A mixed type.
2. The coöperative plan where the child is a member of the regular grade with headquarters in that room but his eyes are conserved through having special assignments read to him and map work explained. Reading is done from specially prepared books.

Opinion seems to slightly favor the cooperative plan on the basis that these children will always exist as members of society and not outcasts. The assumptions are made (1) that the child can be kept up to grade through these methods, and (2) that segregation makes the children conscious of their infirmity, thus unfitting them for later normal life.

[1] Swift, W. B.: Speech Defects in School Children and How to Treat Them. Houghton Mifflin Co.

These assumptions are false, to some extent, since one is admittedly not dealing with a normal child. That the eyesight may improve is possible, but probably all that can be done is to impede the progress of the defect. Most of these children never overcome their trouble and must be considered accordingly. Some of them progress to blindness, as in certain congenital deficiencies. Furthermore, the unusual child is possibly more conscious of his defects in a normal group, where he must be given special exercises and privileges, than in a group of those with similar difficulties where, by very reason of surroundings, the idea of the pathology becomes more commonplace, and the child is not reminded of his defect as often as in other associations.

Special Classes

Sight-saving classes provide proper educational advantages for two groups of children who do not come into the classification of those eligible for schools for the blind, the standard for which is usually less than 1/10 vision:

(*a*) Those whose vision will not permit the use of ordinary school equipment, assuming an attempt to correct vision with glasses.

(*b*) Those whose vision would suffer serious damage should they be compelled to use ordinary school equipment, even with attempted correction by glasses. In this last group, danger of injury to nervous system and general health exists as added reason for admission.

Standards of admission. Every doubtful child should be referred to the school ophthalmologist where the parents will permit. A rough standard for classroom use is 20/50 or less for both eyes. Examine at once any children whose activities and class work make the teacher suspect abnormal vision.

The standards of Eyesight Conservation Classes have been worked out by various groups of eye specialists and do not differ widely. Usually one good eye constitutes non-eligibility for these classes. Proper refractions are assumed to have been made.

1. *New York standard.* "General standard of 20/50 or less in better eye, except for myopes whose cases must be considered individually."

2. *Massachusetts standard.* (*a*) "Children suffering from congenital defects, old scars of the cornea, optic nerve atrophy, etc., whose vision can not be brought up to beyond one-third normal."

(*b*) "Young children suffering from myopia whose vision can not be brought up to beyond one-half normal (after the child has become accustomed to glasses) where the correction is three diopters or more. All children suffering from myopia which is progressive even though glasses may bring the vision up to nearly normal."

(*c*) "Children with hyperopia or astigmatism whose vision is 20/100 or less, unless there is decided asthenopia."

(*d*) "Children suffering from cataract where the vision is 1/2 normal and there is difficulty in accommodation."

3. *Ohio standard.* (*a*) "Children who can not read more than 6/24 at distance and who can not read 2.00 at 20 cm."

(*b*) "Myopes whose condition is likely to be progressive."

(*c*) "Hyperopes who have symptoms of asthenopia, and who have more than 5 diopters of hyperopia."

(*d*) "Children who have an astigmatism of more than 3.5 diopters, whose vision can not be brought up to more than 6/24."

(*e*) "Children with maculae, nebulae, leukomae (scars), who have less than 6/21 vision."

4. *Cincinnati*, under the direction of Stricker, devised a slightly different code.

(*a*) "Children who can not read more than 6/21 at distance and who can not read 2.00 at 20 cm."

(*b*) "Myopes who have more than five diopters of myopia."

(*c*) "Hyperopes who have symptoms of asthenopia and who have more than five diopters of hyperopia."

(*d*) "Children who have an astigmatism of more than 3.5 diopters and whose vision can not be brought up to more than 6/24."

(*e*) "Children with maculae, nebulae, leucomae, which interfere with sight and lead to eye-strain."

5. Wood of *Minneapolis* advises these groupings:

(*a*) "Myopes of 8 diopters or more."

(*b*) "Myopes whose vision can not be brought up to one-half normal vision: 6/12."

(*c*) "Progressive myopia."

(*d*) "Children having macula or leucoma of the cornea; or optic atrophy with vision of less than 6/15."

(*e*) "Astigmatism with glasses 6/21 or less."

(*f*) "Hyperopia with more than eight diopters, with symptoms of asthenopia."

(*g*) "Keratitis. In the interstitial type, if the vision remains low after the eye has been quiet for three months, or in persistent recurrent conditions while under treatment."

(*h*) "In congenital cataracts or secondary cataracts where no acute condition is present, vision 6/15 or less."

(*i*) "Congenital malformations, where the vision is 6/21 or less."

(*j*) "In all chronic diseases of the fundus, where the vision is 6/12 or less."

Equipment. *Room.* Throughout, glare is to be avoided. An average classroom is none too large for such a group since space must be provided for moving about, changing of furniture, and for exercise.

Any properly-lighted classroom is satisfactory. Many believe a northeast exposure is best because of the nearly steady and constant lighting. Next best is northwest, with the south windows least desirable. Uniform unilaterial natural lighting is desirable.

Glass area should be not less than one fifth of floor area. Best results are obtained from windows placed three feet three inches from floor to window-sill and six inches from the ceiling since most light is received from the top.

Shades of buff-colored translucent material are best since they both transmit and diffuse light. They should be on a fixture permitting their being both raised and lowered from the window. Such fixtures are available.

Wall should be light green or French gray in dull finish. Ceiling should be white or light cream.

The woodwork should be a dull-finished surface of fairly light-colored wood, never white.

Artificial lighting should be provided either of the indirect or preferably of the semi-indirect type. For an average room of 720 to 900 feet about six fixtures should be installed, providing two and one half to three watts per square foot of floor area.

Equipment of the room varies with the funds available. Certain principles are important. "Individual articles for individual pupils" is a desirable policy. Glare should be avoided, likewise absorption of light by furniture. Handwork material depends on what is taught, only every possibility of slight injury through carelessness must be eliminated, as by using round pointed scissors instead of sharp pointed ones.

Cupboards with individual spaces should be provided for each individual's work and again for each individual's lunch equipment. Other space for various materials used is desirable.

Blackboards will some day be discarded for large rolls of paper of neutral shade. Until this is done the proper board is a dull-surfaced slate with not less than 16 square feet of surface per pupil. Never place these between windows. Some systems like to provide shades or curtains of the same color as the walls, to pull down over the boards when they are not in use, thus avoiding absorption of light.

Seats should be movable and adjustable. The Moulthrop type, as modified by many manufacturers, is best. However, many make the seat too long, others use construction which results in considerable noise when drawers are moved; some do not give sufficient angle of elevation to the desks; others omit the necessary rail at the lower edge of the desk that holds books, etc., when the desk is slanted; some have no book rack on the side. Dull matte finish is necessary. Correct size of desk for the individual pupil is essential. When small cardboard letters are used for word-building, special racks of the type constructed in New Bedford will permit slanting of the desk surface without dropping the letters on the floor. These racks fit Moulthrop type desks, and consist of wooden bar crossing the desk surface and attached on either end to cross pieces which fit over the right and left sides of the desk top. The rail at the bottom of the desk top prevents the rack from slipping.

Books should all be of large type, preferably twenty-four point type, although the earlier work was done with thirty-six. Some difficulty exists at present in obtaining these. Large reading, spelling, phonetic and number charts are essential; the first two types should be of the same series as the large type books.

Pens are never used. Provide large pencils with soft, thick, heavy lead (Eagle Alpha 245 or Veriblack No. 315). Too much written work should never

be attempted. Paper must be a slightly rough, unglazed manila in sheets at least 12 inches by 9 inches. Heavily ruled paper with lines one inch apart should form part of the paper supply. Large writing is advantageous.

A typewriter, with silence pad and shield for covering the letters, is needed if this work is taught. The stand should be about twenty-six inches high. A wall chart for beginners and a standard book on typewriting are required.

Material for handwork. Small wooden looms; raffia with needles, and various wooden bases, needed for the different articles to be made; plasticine or modelling clay; knitting needles and yarn; building blocks; sand table; large wooden letters for young children; these represent the major handwork equipment.

Some means of providing music, as a piano or mechanical instrument, is helpful. A basketball is excellent for exercise.

Medical supervision. These classes should always be under the control of an oculist as well as a physician. Thorough examination under a mydriatic should be made before admission and at least once every year, preferably every six months, during the school career. The eye specialists should be encouraged to send suitable cases to these classes; their patients should be kept under their management and where possible should be returned to them for the regular eye examination instead of to the class oculist. Some of the acute inflammatory conditions of the eyes frequently occur in these groups and these cases should have the advice and treatment of the oculist at once. Psychiatric cases, when enrolled, should be watched by the psychologist as if they were in the retarded classes.

Size of class. Circumstances must govern this. It is better to have a large class than refuse such facilities to those children who need them.

A good plan is to divide the group into primary and grammar grades, depending somewhat on the type of enrollment.

Ten pupils in three grades, eight pupils in four grades can be cared for satisfactorily. If the regular grade work is not followed (as in the segregated class) as many as seventeen or even twenty may be taught if need be, in four grades. Fewer is desirable. Probably no more than twelve pupils in no more than five grades is desirable. The Ohio plan required no more than ten if three grades were enrolled and not over eight pupils if four grades were represented.

Program. The primary object is to instruct the pupil in method of conserving what portion of his eyesight he has left. Braille promotes eyestrain because the semi-blind child tries to read it with his eyes, not fingers, and is therefore not permissible. Typewriting is favored by many but later the necessity of meeting the competition of normally functioning eyesight may prove discouraging. Probably a combination of dictaphone and typewriter is the most satisfactory, but even then the child must read for correction any material prepared. If typewriting is taught, too much interest in the future economic possibilities of this training should be avoided. The best point of view is to teach this work if the pupil personally will derive any satisfaction from it. To expect him to compete with the normal pupil of the

business school may be demanding too much and only opens the possibility of later disillusionment.

Where contact with normal classes is retained, the morning exercise, oral arithmetic, geography, history, nature study, literature and oral language may be taken with the regular grade. Demonstrations of board and map work, missed by the conservation class pupil, must be provided by the special teacher who will also care for manual training, drawing, spelling, and all written work.

Higher education. If high school training is desired, conservation classes can be organized on the usual plan; if only a few pupils are available, a tutor may be helpful.

Carefully chosen vocational training offers work which will not result in eye strain and affords the pupil the best chance of earning at least a partial living.

As to actually keeping these pupils up to grade the teacher of such a class will admit it is often impossible. These special classes can be graded and promotions given but this is no proof that the child promoted can compete with the normal pupil. Furthermore, these pupils sometimes desire to continue their education beyond the public schools and unless liberal financial backing is available to provide readers and tutors, the child has reached a stage where disillusionment is inevitable and at a time when serious discouragement will result. In general a "conservation" child has a poor or guarded prognosis and this must be remembered. Once in such a class, comparatively few leave it till the school career is over and then for work which their limited sight permits.

The teacher. The special teacher must have the same sympathetic and tactful personality as all those who handle classes for defectives. She must understand the physical abnormalities and recognize limitations. Requirements include (1) some previous experience in regular grade work; (2) special training as a cadet teacher in a similar, well-conducted class; (3) a fair knowledge of eye conditions. The teacher must work in close coordination with the medical personnel, and must be able to recognize the need of emergency examination or treatment when indicated. She must be sure that glasses and frames are kept properly adjusted. Carelessness in this matter is common and serious.

Special eye groups. Classes for trachomatous[1] children follow the general plan for sight-saving classes. Such groups are always segregated because this disease is contagious at certain stages. Each child requires individual articles for personal and class room use. He must avoid touching the eyes.

The mentally defective child with very limited vision is a borderline case and we must first be sure that the retardation is not simply a result of the eye lesion. The best plan for the mental defective is to retain him in the mental class, but the benefit of special equipment for eyesight conservation must be given, plus the services of the school ophthalmologist. A doubtful case may be given a trial period in the eyesight class.

[1] Recently doubts have been expressed as to the communicability of trachoma. Investigations are proposed. Special classes for trachomatous children have proved of little value as an educational measure and few exist at present.

Relation to the home. The parent should clearly understand the true state of affairs and the possibilities, when permission is obtained for transfer to the special class. A close contact must always be maintained between the school and home with these children. The parent's written permission should be obtained for all eye examinations with mydriaitics.

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CLASSES AND SCHOOLS FOR THE DEAF

Usually this type of special class is found only in the largest school systems, probably because the number of suitable cases is not large enough elsewhere. Only the child who has a marked degree of deafness is eligible unless special provision is made for groups with chronic or acute running middle ears where irrigations are needed several times a day. In many of such cases, even with the best of care, the odor arising from the discharge from the ears precludes even special classes. The running ear cases can be irrigated at proper intervals by the school nurse, possibly by a specially instructed and skilled teacher, in case nursing service is not ample, and if facilities are provided. The home must be expected to coöperate in the matter also, and thus remove at least part of the burden from the school.

Children with defects of hearing are divided into three groups for purposes of education: (*a*) intermittent deafness cases, who need medical treatment; (*b*) mild cases who are given front seats in school exercises; (*c*) children who are handicapped by deafness. These are given lip-reading and special training.

Plans for education of the deaf. Three special methods are employed, in all of which lip-reading is emphasized:

1. The special institution of the educational type for those who, because of partial or total deafness are unable to profit by instruction given in schools for hearing children. In Massachusetts, the State Board of Education provides such care in certain approved institutions upon application. The schools are fairly central in different sections of the State, several being available.

2. Separate schools in large city systems.

3. Special classes in regular school.

4. A less satisfactory plan where no other provision is made, is for the pupil to have the benefit of a front seat or special individual privileges, such as moving closer to the speaker. This is best only where the parent will not permit the child to enter a special group. In rare cases, special lessons in lip-reading are offered by a special teacher a few minutes daily or are obtained from a private tutor. The present tendency is to prefer special

teaching in the regular day school, that the deaf child may associate with normal children as much as possible. Here, as much instruction as possible should be given in classes with normal children since the association with hearing and speaking children acts as a stimulus to speech. This plan also permits considerable practice of lip-reading. In the lower grades the work of the regular room is limited to physical exercise and manual training but class-room contacts with normal children are increased as the child becomes proficient in lip-reading.

Advantages of the separate school.[1] One teacher experienced in this work considers the advantages are:

1. Careful examination by aurists and tests lasting over a week to determine the amount of deafness and the mental caliber of the child.

2. Classes can be limited to ten or twelve children thus permitting the teacher to give more individual attention as needed, especially in repeating and explaining as much as seems beneficial.

3. The child finds his balance, loses his nervousness, realizes he can attain good marks, and thus acquires the necessary self-confidence.

Selection of candidates. Where the ears are tested functionally by the school officials certain suspicious cases will be found. Dull children in general should have special ear examinations as well as the mental tests. From these two groups those who seem to require it should be referred to the otologist for expert examination and advice. He will decide as to admission to special classes.

Equipment for school for deaf.

1. Fresh air classroom, lunch room and kitchen.
2. Movable adjustable furniture.
3. Apparatus for teaching vibration values: grand piano, drum, and several string instruments (cello, violin, banjo).
4. Special apparatus for physical education.
5. Gymnasium and adequate play space out of doors.
6. School garden.

This is an ideal equipment. If such equipment, for any reason, can not be procured, considerable progress can be made with a suitable classroom supplied with movable adjustable furniture with some provision for vocational or manual training work.

In a well-known public school for deaf children in New York, the physical care of the children is looked after by an otologist, an ophthalmologist and a general physician. Each pupil is carefully examined before admission. Children reported by the teacher as in poor condition are given special examinations and in many cases arrangements for special treatment are made with hospitals. More time is given to specialized physical training and hygiene for the deaf than to other studies.

Warm nutritious lunches are served every day, since most children coming to a central school must remain in the building at noon, because of the distance from home.

[1] Annual reports of the Supt. of Schools of New York City, 1918–1920.

Trade work is emphasized and vocational work taught includes cooking, sewing, hand-lettering, sign-painting, brush-making, basketry, millinery, flower-making, tasselling.

Language receives much attention, as it is the great stumbling block for the deaf child. He acquires nothing subconsciously but must be taught every word he uses and must memorize everything. Grammar is taught very early, and, about the end of the fifth year, the child has the grasp of language, from the deaf standpoint, sufficient to give him his power of expression.

Library training and enjoyment of books are given older children to guard against future loneliness.

Grading. If a special class only is available, grading is difficult since the ages vary and it is impossible to do justice to all. McAuliffe[1] states that at five years "The deaf child of that age is equal to a hearing child of two or three years. Under proper education, at fifteen years, the deaf is almost the equal of the hearing child." The Pintner intelligence tests are used for for educational prognosis.

The institution plan. The Clark School at Northampton, Mass., divides the children into primary, intermediate and grammar groups; the intention being to fit for high school although it is not expected that the majority will have this in mind. Such preparation is hoped to fit them for attendance at the high schools at their homes.

The method of instruction is known as the Oral Method, under which all instruction is given through speech and lip-reading. Effort is made to develop the moral and social sides of the child's nature and the habit of reading is fostered. Vocational training is given. A gymnasium is used for physical training. The school year is of forty weeks, vacations being spent at home.

The course of study. *Primary department.* Speech training exercises, speech reading, speech, cultivation of residual hearing, writing, English, number work, nature work, primary manual arts.

Intermediate department. English, speech, speech training, cultivation of residual hearing, nature work, arithmetic, geography, current events, United States history stories, drawing, manual training, sewing, basketry, cooking.

Grammar department. English, speech, speech reading, cultivation of residual hearing, arithmetic, algebra, book-keeping, geography, current events, history of the United States, general history, civil government, English literature, physiology, physics, chemistry, drawing, cabinet making, cooking, sewing, printing, typewriting, weaving.

The teacher. Specialized training is required, preferably in a training school for teachers of deaf children. A thorough knowledge of pedagogy and psychology plus sympathy, tact and genuine interest in the work represent the major needs for this position. The assistance of a special physical training teacher and a teacher of speech rhythms, is helpful, although the teacher can be trained in these fields as well. The salary schedule obviously should be higher because of the advanced requirements.

[1] McAuliffe, G. B.: Studies of the Deaf Child, New York State Journal of Medicine, Vol. 24, No. 5, page 197, Feb. 22, 1924.

In one normal training school a one year course is given under this plan:—ten months course of study and reading; of observation of schoolroom work, and of teaching under direction. The subjects are: preparatory sense training; mental development, and methods of language teaching; formation and development of elementary English sounds; visible speech; anatomy and physiology of the vocal organs; voice training; aural training; speech reading, adaptation of methods of teaching arithmetic, geography, history, etc.; and a history of education of the deaf. A course of lessons in blackboard drawing is also offered. Each class is given a series of lessons in one of the methods of lip reading (in this particular school the Mülle-Walle, commonly known as the Bruhn Lip-reading System, is taught).

Research. At present the needs of this group necessitate more study and greater perfection of method. The President of one institution ably outlines the aims to be attained by research:

1. Greater intelligibility of speech and better quality and control of voice; these to be secured by a fuller study of anatomy, the laws of sound vibration and rhythm.
2. Extent to which sight and touch may be used in giving speech to deaf children.
3. Instruments for amplification of sound (considerable progress has been made in this field especially in connection with large public assembly halls).
4. Cultivation of residual hearing.
5. Psychology of deafness.
6. Better classification of pupils, secured through the use of mental and educational tests.
7. Occupations best suited to the deaf.

The deaf child's idiosyncrasies. Sensitiveness over the affliction is one characteristic of such children. Another is a tendency to hide the trouble as much as possible. Information is often elicited with great difficulty. This holds true for parents as well. Certain characteristic physical deficiencies of deaf children exist and the most important of these are a shuffling walk due to defect in their power of equilibrium; for the same reason balance is maintained with difficulty in running, jumping, and skipping. Poor posture is very noticeable. Sense of rhythm is lacking.

Lip-reading. Some believe lip-reading may cause eye-strain in certain cases. This being true, a careful watch over the eyesight must be maintained. Oculists themselves are not agreed upon the point but until proved otherwise, we must observe suitable precautions through regular testing of the eyesight in such groups, preferably twice in a school year, perhaps at the beginning of each term of school and on special occasions as indicated.

The following bulletin may be of interest. Schools for the Deaf 1921-1922, Bulletin, 1923, No. 52, Department of the Interior, Bureau of Education, Washington, D. C. Government Printing Office, Washington, D. C.

Name _____ Grade _____
Address _____ Age _____

Exam. Drs. Shefferd & Borden from Lip Reading	Hearing	R.	L.
Tonsils	Fork C		
Adenoids	Fork C 3		
Glands	Voice		
Ears			
Advise			

FIG. 154. Fall River form for study of children with defective hearing.

SPECIAL CLASSES, ROOMS, AND SCHOOLS FOR CRIPPLES

Such classes exist chiefly in school systems of large population because of the small numbers of eligible children. Where there are a sufficient number of crippled children, special institutions are often founded and equipped with the special facilities required for proper care of the group. In many hospitals, classes are held for the orthopedic type of cases, whose stay in the hospital is usually a matter of months rather than weeks or days. These classes are known as "ward classes" and are usually under a teacher assigned from the public school system. The children are under the school system, from a pedagogic point of view only. The teacher works in cooperation with and considerably under the direction of the hospital authorities since the amount of work permitted each child is both an individual and a medical matter. Furthermore, any progress at all in education is helpful especially in the development of character. Practically, the hospital staff may be said to be in charge of the class, even pedagogically. In this book the interest will be centered in the special school-room class only since the institutional type involves either (1) special problems connected with medical treatment or (2) a highly specialized type of institution about which alone a book might be written.

Special classes. The New York Classes furnish an excellent model and their methods are recommended.

Purpose. These classes represent an attempt to provide a nearly normal school atmosphere for a segregated group, plus protection and technical supervision of their physical defects. Thus the children feel they are a very definite part of the school system. Hospital classes or home instruction are provided for those too greatly handicapped to attend the special classes in the public schools. In the home instruction, volunteers or social agencies will often help where the expense of a special teacher is not permissible.

Type of children. The majority will possess some orthopedic or nerve defect. The principal diseases found are the results of infantile paralysis, tuberculous joints, deformities which are congenital or the results of accident. The acute tubercular orthopedic lesions will be seen only in the hospital or home. Acute or tender poliomyelitis cases could never be under any teaching supervision; only children with handicaps resulting from the effects of the disease being admitted to these groups. Less common diseases are progressive muscular dystrophy and spastic paralysis, scoliosis, osteomyelitis (again in certain stages only), meningitis and arthritis. In the public school classes no disease is in the active stage.

Number of children. The reason for the small number of these classes may be seen from the statistics of the large New York school system. By comparison, the number in many systems would be too small for classes, and home instruction would be the solution. In 1921, 2514 crippled children were registered in 101 classes in 44 public schools, annexes, hospitals, and convalescent homes in five boroughs. 533 were resident patients in children's wards of hospitals. In June, 1921, there were 32 home teachers, one volunteer home teacher, and one volunteer teacher of occupational therapy giving home instruction to 173 home-bound children.

The class room. The class room should be located on the ground floor near an exit and the playground. Stair climbing must be largely eliminated. Corner rooms with south-easterly or south-westerly exposure and direct ventilation even in stormy weather are preferred. The furniture must be special movable adjustable type suitable for the individual cripple. As in other special classes, facilities for rest periods, such as cots, are valuable for those whose defects make their use possible.

Transportation. In New York City, stages having capacities of 15–25 children carry the children from the homes to the schools and back again at night. The Board of Education owns the majority of the stages and they are also utilized for carrying school supplies, hot lunches, etc. Some are hired. After June, 1921, plans were made to carry 2,181 children or approximately 109 stage loads, requiring 55 stages, each making two or more trips.

The program. The program must be planned on the basis of:

1. Shorter school day.
2. Frequent periods for rest, relaxation and treatment.
3. Grading of classes with not less than two grades to a class and frequently with all grades. Naturally in a small school system, all grades would have to be provided, if required by the needs of the pupils.
4. Each pupil's physical condition.

Course of study. This is modelled after the course used in the regular elementary schools as far as prevailing conditions permit. Instruction has to be more or less individual. Much time is allowed for preparatory work in industrial training as this is one of the means of fitting crippled children for self-support. Instruction may be given in millinery, bead work, making of ornaments, flower making, making of favors, lettering, printing, architectural drawing, modelling, plaster work, pottery. Trade technic should be insisted upon. Girls may also be taught to sew and cook. Fine needle

work is often taught to girls of advanced classes thus giving them a possible means of support later.

The work in physical education includes (1) curative exercises and special individual gymnastics under the direction of an expert; (2) teaching of such games and free play as the child's personal physical condition permits. It should be individual to meet individual needs and should never be attempted without expert medical advice and follow-up.

Home instruction is given in the elementary school subjects and handwork.

The amount and kind of mental and physical work which each child is permitted to do is based upon the recommendations made upon the hospital record cards by the specialist treating the child.

Promotions are made from group to group (notice, not grade to grade) at any time during the year when the pupils are ready for such a change.

Diet. In many cases a nourishing noon meal is served, as the children can not travel home at this time and such pupils are supplied with milk both in the morning and afternoon.

Medical care. Great stress must be placed upon the establishment of treatment of the orthopedic defects which were the cause of admission. Systematic visits to clinics, hospitals, and private physicians are encouraged. Hospital record cards are secured during the school term (in N. Y.), and used as the basis for special school care. School medical inspection is made several times a year.

The teacher. She should possess (1) the same qualities of personality required for all special classes; namely—sympathy, tact, genuine interest and special understanding of a technical nature.

2. Good judgment of child personality and ability to recognize the need of some pupils for a kindly teacher to bring them out of their shyness, and the need of other pupils for someone to spur them to independent effort.

3. A knowledge of elementary instruction plus an understanding of individual instruction, industrial arts and crafts, trade conditions, and the demands of the industrial world.

4. Experience in regular grade teaching before specializing, if possible.

The teacher of physical education should be one specially trained in corrective work. Her work will often require consultation with physicians (school or family) or specialists in orthopedics. She must possess, (1) an elementary knowledge, at least, of the different physical disabilities found in such groups; (2) an understanding of the causes of the children becoming crippled; (3) and an understanding of the hygienic adjustments necessary for the pupils' comfort.

Substitutes for these classes. Some orthopedic cases of the inactive type, but ambulatory, may be permitted to attend fresh-air classes if facilities permit and their number is too few to require a special class. This is particularly useful in the tubercular bone lesions.

Failing this, some children may be permitted in the classroom, where the furniture can be adjusted, and here special personal privileges must be enjoyed. In case this harms the discipline of the room, the choice must be made between complete participation, or exclusion and home instruction.

SPECIAL CLASSES FOR CARDIAC CHILDREN

Purpose. Few children possess a more pathetic and discouraging outlook than those with cardiac disease. A few of these have an exceedingly good prognosis but the majority must look forward to a life of limitations, often restricted almost to uselessness, a burden alike to their families and themselves.

The special class provides marked advantage for selected and favorable cases, if this plan can serve not only to give them the pleasure and advantage of at least a partial education but also to instruct them in a regime dictated by the physician as specially suited to the individual's needs.

Classification of cardiac children. Approximately two percent of the elementary school population of New York, are suffering from cardiac disease of some sort. In general a very satisfactory method of grouping is that adopted in 1921 by the New York Association of Cardiac Clinics:

"*Class* 1. Patients with organic heart disease who are able to carry on their habitual physical activity.

"*Class* 2. Patients with organic heart disease who are able to carry on diminished physical activity: (*a*) slightly decreased; (*b*) greatly decreased.

"*Class* 3. Patients with organic heart disease who are unable to carry on any physical activity.

"*Class* 4. Patients with possible heart disease. Patients who have abnormal physical signs in the heart, but in whom the general picture, or the character of the physical signs leads us to believe that they do not originate from cardiac disease.

"*Class* 5. Patients with potential heart disease. Patients who have not any suggestion of cardiac disease, but who are suffering from infectious conditions which may be accompanied by such disease; *e.g.*, rheumatic fever, tonsillitis, chorea, syphilis, etc."

The children actually selected for such groups are those who have organic heart disease with some evidence of cardiac insufficiency, as decompensation in some degree. Admission is granted to:

"1. All congenital cases;

2. Potential cases:

(*a*) With history of acute rheumatism;

(*b*) With two of the following symptoms present: tonsillitis, myositis, growing pains or joint pains;

(*c*) Severe recurring choreas;

(*d*) Children with heart murmurs and definite valvular lesions."

Location. The special class is often organized in hospitals, usually as a division of the out-patient department; and the cardiac clinic bears a close relation to those which would naturally deal with the elimination of the so-called toxic foci. In the public schools under certain conditions such groups are being organized.

Conditions for organization. 1. There must be a sufficient number of children. Probably eight or ten children would be the minimum to warrant the expense.

2. They must either live within a block or two of the school; or else where adequate transportation facilities are provided, a somewhat wide range may be covered. In any case the distance to the home should not be a great one.

The best location is on a first floor, in a portable building, or elsewhere if an elevator is available. Climbing stairs is to be avoided.

The equipment must consist of suitable portable desks plus invalid chairs or cots on which to rest. Certain children will be uncomfortable when lying horizontally, and, if cots are used, several pillows or a head rest must be available. For this reason the invalid chair may prove the better type of equipment.

When a special class is organized the fundamental plan of organization is much the same as that of the fresh-air class; in fact similar conditions are desirable and cardiacs do well in fresh-air classes. All grades are admitted and the program is suited to individual needs; emphasis being placed upon rest, suitable diet, limitation of study, graduated play and exercise, and protection against undue exposure.

Regime. The class room program in New York as seen in Public School 64 is:[1]

"8:30– 9:00 Arrival. Given cup of warm bouillon.
9:00– 9:15 Rest in reclining chairs. Observation by nurse to determine pulse rate, temperature, and other physical conditions.
9:15–10:15 School program.
10:15–10:35 Recess.
10:35–12:15 School program.
12:15–12:45 Lunch period; warm lunch served.
12:45– 1:45 Rest period for all children in reclining chairs.
1:45– 3:00 School program, including specialized physical training exercises which are arranged in accordance with the recommendations of the cardiac specialist in charge of the child.
3:00– 3:15 Rest in chairs. Observation of temperature and pulse rate.
3:15– 4:15 After school recreation period. Out doors in pleasant weather.
4:15– 4:30 Hot drink, in cold weather, or cracker and milk in warm weather.
4:45– 5:00 Dismissal. Walk home or transportation by bus. Dismissal earlier in winter."

The reader should notice (1) the frequent rest periods, and (2) the fact that no period of class work is over one and one-half hours without rest, (3) the one session day, (4) the attention to nutrition, and (5) the graded physical exercises.

Physical exercise. Graded physical exercises are desirable but if these are to be used, standardization is necessary. Wilson[2] has described a series of tests, in addition to which the following studies were made:

(1) Each child was given a complete physical examination, and this included fluoroscopic tracings of the cardiac silhouette. Careful routine

[1] First Report of the Association for the Prevention and Relief of Heart Disease, New York, N. Y. This regime is quoted in other sources with very slight variations.

[2] *Loc. cit.*

histories with special notes regarding predisposing factors and exercise tolerance were taken. At the termination of each test exercise, observations were made of the pulse rate, blood pressure (systolic) and clinical symptoms (color, dyspnea, fatigue).

From this study a working table of standardized test exercises was developed considering age, weight, height. Wilson concluded that:

(1) Children with acute carditis are unsuitable for her tests; at least two weeks should elapse after the termination of symptoms before test exercises may be given. (2) The mild test exercise should be the first given. (3) The normal heart permits use of the average or severe tests. (4) The dumb-bell test is best for office and clinic, the staircase test is more suitable for schools. (5) The test of systolic blood pressure is a valuable objective sign. (6) Clinical improvement is accompanied by increased tolerance.

Barringer[1] permits exercises under the conditions below. The child is first classified according to the Association groups and Class One or Two A cases may be placed at once on regular physical exercise of the energetic type. Class Two-B (organic with greatly diminished physical activity) should exercise only under the direct supervision of a physician. Patients recovering from an infectious endocarditis recently or from an attack of heart failure form a group to be administered cautiously. In the infectious type, too early exercise may light up the infection.

Exercises are grouped as mild or energetic depending on the amount of increase of the systolic blood pressure subsequent to the exercise. In energetic type, work produces a marked increase of the blood pressure (twenty or more millimeters of mercury). Working periods must be short and alternated with periods of rest. Exercise must be prescribed in definite amounts.

The best types are with dumbbells, stair-climbing, skipping rope, running in place, hopping, calisthenic exercises as seen in public schools and the setting-up exercises used in the army.

For energetic exercise use dumbbells weighing from one to fifteen pounds. Swing the bell between the feet in an arc above the head and repeat without a pause; flex the forearms alternately, with a bell in each hand, the patient sitting or standing; push two bells alternately above the head. Each period of continuous exercise ("close") varies between five and twenty movements. After each close the patient rests till blood pressure and pulse return to normal. The doses are repeated from five to ten times at each exercise period, which is usually once in twenty-four hours.

The mild form of exercise stimulates the heart's activity only moderately over long periods of time as is shown by the small increase in blood pressure following the exercise. This is used for patients with small cardiac reserve power and to supplement the first, more energetic type of exercise.

Walking is the best example of the mild type of exercise and is done first on the level. The patient should not talk and should not walk against a strong wind. A short distance may be covered at a steady gait and then the patient should rest for two or three minutes; then repeat the walk and rest.

[1] *Loc. cit.*

Other mild forms are croquet playing, setting-up exercises in which the arms and legs, and not the trunk, are moved, and "short golf." As the patient's reserve power increases, one of the more energetic types of exercise should be added to the daily regimen.

The following forms of heart disease are not suitable for exercise treatment:[1]

1. Patients in whom there exists symptoms of heart failure—edema, temperature, dyspnea when resting.
2. Patients who have very recently recovered from an acute endocarditis.
3. Patients with angina pectoris.
4. Patients with marked hypertension.

Exercise, properly graded, will, as in the normal heart, give a marked influence on the coronary circulation, plus an effect on the nutrition and contractility of the heart. The resistance of the heart to infection is thus increased and when foci are removed, the combination is an important preventive measure against heart failure and recurrent endocarditis.

The vital capacity of the lungs, according to Wilson and Edwards, bears a close relation to the heart functional capacity as gauged by exercise tolerance. In children, this measurement cannot be considered quite so reliable an index of diminished capacity for physical activity, because of the wide variation obtained in normals and the chance of other complicating factors. Such functional tests as the Foster are of moderate value in classifying cardiac children.

The relation of the cardiac child to various types of labor will be discussed in the chapter on The Child in Industry.

Medical supervision. If possible, close relation between the special class and a cardiac clinic should be maintained. At the clinic would be kept a careful and comprehensive medical record of the child. Failing this, the school or the family physician should have complete records.

The Heart Clinics in Philadelphia use a five part record,[2] the first three parts of which are printed herewith (Fig. 155 (1), (2), (3)). This record is reproduced from form used by the Association for the Prevention and Relief of Heart Disease, New York City. The parts of the form not printed in this book are—Part 4, "Medical Social Service Record," and Part 5, "Abstract of Hospital Record While an Inpatient."

Frequency of examinations depends on the individual case. The poorer the physical condition, the more often investigation is needed. At times, special visits of an emergency type will also be required.

Medical supervision must be directed to removal of all foci of infection, building up nutrition, and advice as to any special treatment needed. Some arrangement with the parents as to handling emergencies is desirable, and close relations with a convalescent home similar to those between many Tuberculosis hospitals, out-patient departments, and fresh-air classes are helpful.

[1] Barringer, T. B.: *loc. cit.*

[2] Monthly Bulletin of the Dept. of Public Health of the City of Philadelphia, Vol. 7, Nos. 9 and 10, Sept. and Oct., 1922.

CARDIAC HISTORY—First Record 1

Hospital | Out-patient dept. or clinic | Date | Issuing Clinic No. | Serial No. (A. P. R. H.)

Name of patient | Address | Sex | Color or race | Age | Single / Married / Widowed | Religion

COUNTRY OF BIRTH: (Descent) | Town or city | Number and address of SCHOOL | Days lost: from { WORK / SCHOOL } 1 yr. ago | 2 yrs. ago | 3 yrs. ago | Character | Amount

Father

Mother | Name and address of Employer | Exercise

Patient | Games

OCCUPATION OF PATIENT:

History	General nature of industry or business	Trade or particular kind of work	Type of Work Heavy—Med.—Light	Time lost acct sickness each year	No. of hours per week	Wage per week	Date entered upon work
Present occupation							
Past occupation (1)							
Past occupation (2)							
Past occupation (3)							
Past occupation (4)							

FAMILY HISTORY:

	State if alive, present age; if dead, age at death	If alive, suffering from any illness?	If dead, cause of death. (Note heart disease specially)
Father			
Mother			
Brothers			
Sisters			

PRESENT HABITS AND HYGIENE:

Sleep—hours | (Good—fair—poor—very bad) | How many pillows

Appetite (Good fair poor—very bad) | Tobacco per day? Pipes / Cigars / Cigarettes / Chew

Bowels regular? (Yes or no) State frequency

Habits (State "Heavy"—"moderate"—"none") Alcohol | Tea | Coffee | Sweets | Drugs

DIET: Breakfast / Lunch / Supper

PREVIOUS TREATMENT FOR HEART DISEASE:

Treatment	Condition Treated	Dates	Time in Bed	Drugs	Work	Other
Private Physician						
Clinic						
Hospital						
Sanatorium						
Osteopath						
Chiropractor						
Christian Science						

PATIENT'S HEART HISTORY:

Congenital or acquired? | Duration Years | Months

Children: No. Alive | Dead | Miscarriages | Complications

Menstruation: Frequency | Character | Amount

HISTORY OF OTHER DISEASE: (If patient has had the disease, indicate by "Y" and give year of occurrence If not, write "N" Indicate severity: "S"–Severe, "M"–Moderate, "L"–Light)

Rheumatic fever 1st attk.		Measles	
" " 2nd "		Scarlet fever	
" " 3rd "		Diphtheria	
Chorea 1st attack		Whooping cough	
" 2nd "		Varicella	
" 3rd "		Typhoid fever	
Tonsillitis		Dysentery	
Purpura		Influenza	
Rheumatic nodules		Pneumonia	
Erythema nodosum		Malaria	
Urticaria		Otitis media	
Tooth and gum infections		Syphilis	
Torticollis		Gonorrhea	
Muscle or growing pains		Operations	
Joint pains		Other causes	

CARDIAC SYMPTOMS—give dates.
If any are brought about by exertion or excitement, specify by writing (E).

	1st attack Yr.	Days	2nd attack Yr.	Days	3rd attack Yr	Days	4th attack Yr.	Days
Dyspnoea								
Orthopnoea								
Cough								
Palpitation—rapid								
—forcible								
—irregular								
Pain—site								
—radiation								
—character								
Swelling—legs								
—abdomen								
Headache								
Nose-Bleed								
Vomiting								
Nausea								
Loss of weight								
Fatigue								
Faintness								
Giddiness								
Tremor								
Flushing								
Sweating								
Pallor								

CHIEF COMPLAINTS:

SUMMARY:

FIG. 155. (1) First Record. Forms devised by the Association for the Prevention and Relief of Heart Disease. Three of the series are shown as Fig. 155, (1), (2), (3).

CARDIAC HISTORY 2

PHYSICAL EXAMINATION: (answer "yes" [Y] or "no" [N] wherever possible)

Name of patient: | Hospital | Out-patient dept or clinic | Issuing Clinic No. | Serial No. (A. P. R. H.)

Date | Temp | Pulse | Resp. | General condition—(Good—fair—poor. Note nervousness) | General mentality (Good—average—poor) | Weight—grams | Height—cm. Total Torso | Girth at 4th rib Forced exp. | Forced insp. | Vital Capacity | Girth—abd. at waistband | Cyanosis | Pallor | Nutrition

Clubbing of Fingers | Visual acuity—Snellen Right | Left | Pupils react to light and accommodation? | Ear: Hearing good? | Infection? | Nose: Obstruction | Discharge | Breathing | Teeth: Condition | Infected? | Pharynx: Condition | Infected?

TONSILS: Large or small | Embedded | Diseased | General app. | Exudate | Ragged | Operation | Result | Sore throat follow? | Tonsilar nodes enlarged? Right | Left | Adenoids enlarged? | Other nodes | Thyroid enlarged?

HEART: Rate | Apex maximum impulse is:..... .cm. from median line. . ....space | Lower and outer point is:.....cm. from median line..... space | Arteries: Palpable | Thickened | Tortuous | Pulse: Large or Small | Collapsing | Deficit | Capillary

Tenderness | Sounds: (erect) Base: 1st 2nd Apex: 1st 2nd | Irregularities: | Pulsations in neck

Thrill—time in cycle—location | Blood pressure Systolic Diastolic | Venous pressure

Character | Lungs: | Abdomen

DULNESS: No. of cm. from median line

Space	Right	Left
1st		
2nd		
3rd		
4th		
5th		
6th		

Murmurs: (erect)

	1	2	3	4
Time in cycle				
Quality				
Duration				
Area of audibility				
Site of max. intensity				
Direction of max. transmission				
After change in position				
After exercise				

Liver | Spleen | Extremities—Oedema | Ascites | Joints | Skin and subcutaneous nodules

SPECIAL EXAMINATIONS: Urine: Amount | Color | Spec. Gr. | Albumin | Casts | Sugar | Blood | Date | Wassermann Findings | Date | Von Pirquet Findings | Date | Schick Findings | Date | Blood: Hgb. | R.B.C. | W.B.C. | P | L | E | T | B

EXERCISE TEST: Stair climbing—No. of feet | Time in seconds | or Dumb bells: Weight | No. swings | Time | Reaction: Normal | Diminished | Poor | ELECTROCARDIOGRAM: Number | Date | Preponderance Right | Left | Irregularity | Other findings

X-RAY: (Plate 2 meters from anticathode.) State whether patient is erect—sitting—recumbent. Diameter chest—cm. | Plate exposed in Normal or deep insp. | Complete exp. | Position of heart: Vertical Transverse | Total trans. diam. of heart. (cm.) | Area (sq. cm.) | Aorta—Width (cm.) | Fluoroscopic tracing: File copy | Diagnosis

DIAGNOSIS. ETIOLOGICAL.

ANATOMICAL: Aortic insufficiency | Aortic stenosis | Mitral insufficiency | Mitral stenosis | Pulmonary lesions | Congenital lesions | Aneurysm | Arterial hypertension | Myocarditis | Pericarditis | Aortitis | Other

FUNCTIONAL: Class I—Able to carry on habitual physical activity | Class II-a—Able to carry on slightly diminished physical activity | Class II-b—Able to carry on greatly diminished physical activity | Class III—Unable to carry on any physical activity | Class IV—Possible heart disease | Class V—Potential heart disease

TREATMENT RECOMMENDED. Occupation: General nature of industry or business | Trade or particular kind of work | Hours of work Daily | Weekly | Rest—hours per day | Bed—hours per day

Diet | Baths

Drugs | School—(special class)

Any additional remarks on therapeutic or hygienic measures prescribed (vacations, etc.)

FIG. 155. (2) Physical Examination.

The teacher. Whether one or several teachers are available, each must have suitable personality, *i.e.*, be fond of children, with a thorough understanding of their particular needs. Knowledge of physical training, including games, plays and graded exercises is essential unless this work is given by a specialist in this line;—exercises may either be beneficial or harmful depending upon suitability for the individual.

Malnutrition among cardiac children. Studies at the Post-Graduate Hospital regarding the malnutrition among cardiac children directed their findings toward:

1. Growth, as demonstrated by the height and the weight;
2. Presence of probable evidence of rickets;

CARDIAC HISTORY—Subsequent Record

Hospital	Out-patient Dept. or Clinic No.	Issuing Clinic No.	Serial No. (A.P.R.H.)
Name of patient	Address	Age	S.M.W.D. / M.F

Date				
HISTORY SINCE LAST VISIT:				
IMPROVED—SAME—WORSE				
TIME LOST: At home				
In hospital				
In convalescent home				
OCCUPATION				
CHIEF COMPLAINT				
SYMPTOMS: Dyspnoea				
Cough				
Palpitation				
Precordial Pain				
Fatigue				
Sleep				
Bowels				
Appetite				
Rheumatic fever				
Twitching—Chorea				
Sore Throat				
Skin				
Nodules				
"Growing pains"				
Joint pains				
Fever				
Any new symptom?				
GENERAL APPEARANCE				
Color				
Weight				
Height—Total—Torso				
Ear				
Nose				
Teeth				
TONSILS				
Operation				
Result				
Adenoids				
Tonsilar nodes enlarged? Right / Left				
LUNGS				
Vital Capacity				
HEART				
Rate				
Rhythm				
Thrill				
Cardiac outline in cm. Lower and outerpoint of apex in cm	R Sp cm L S / cm	R Sp cm L S / cm	R Sp cm L S / cm	R Sp cm L S / cm
from median line	cm. / space	space / cm	cm. / space	cm. / space
Sounds Base				
Apex				
Murmurs				
ARTERIES Thickened				
Pulse—Character				
Deficit				
B. P. Systolic—Diastolic				
ABDOMEN				
Liver				
Spleen				
OEDEMA				
ELECTROCARDIOGRAM				
EXERCISE TEST				
X-RAY				
DIAGNOSIS—ETIOLOGICAL				
ANATOMICAL				
FUNCTIONAL CLASSIFICATION				
TREATMENT—Digitalis				
REMARKS				

FIG. 155. (3) Subsequent Record.

3. Evidences of possible anemia;

4. Presence of localized foci of infection. In one hundred children, about seventy-five percent showed most of these signs. Routine was directed toward (1) avoidance of fatigue, plus rest, (2) low protein diet, (3) elimination of foci of infection, (4) graded exercises when practicable, (5) instruction in the prevention of intestinal upsets, and infections, particularly respiratory, (6) frequent observation at the clinic, (7) hygiene rather than medication.

Substitute measures for special classes. Where the organization of a special class is not feasible, very good results can be obtained through permitting absolute freedom from regulations regarding attendance and school activities; the child to come and go, recite or not, as seems best to himself. Where the teacher of the room is sympathetic and understanding, no harm has been done. The teacher should understand the situation and be trained to handle trouble should it arise. In New York City this is the method preferred at the present time under instructions from the Board of Education. Schools are instructed to:

1. Issue special passes to permit such pupils to use special entrances and exits;

2. Permit these children to enter or leave school directly before or after the regular time schedule for normal children;

3. Excuse cardiacs from physical training, fire-drill, etc.;

4. Lengthen the lunch hour in order to avoid haste in eating;

5. Revise the individual regime upon receipt of a report from the family physician.

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THE EDUCATION OF THE BLIND

The education of the blind is conducted in special residential schools or in the public day schools. The former method has been used for years but is believed to leave the graduate of the special school lacking the self confidence and self reliance necessary for reasonable competition and companionship with the pupils who have normal vision.

In either type of instruction the teaching of the group differs extensively from the methods used for the semi-blind in the eye-sight conservation classes.

The Special Class

Organization. The most satisfactory class consists of ten pupils in a special room, in charge of a specially trained teacher. A home visitor frequently assists the teacher in the matter of visits and advice to the home, and often starts in the home the training of pre-school blind children. A vocational guidance worker cares for the placement of the pupils after they leave the school.

Because of the desirability of association with the "seeing," from a social point of view, the regular grade work in mathematics, history, geography, English, etc. may be done in the regular class rooms with pupils who see. The manual training and physical education are taken by the blind group separately.

Contact with the "seeing" children, in certain classes, requires that the special class teachers transcribe much material in Braille for use in the recitations and examinations. To avoid this burden and make use of texts already embossed, the London classes are entirely segregated from "seeing" groups, but this method defeats the main purpose of organizing classes for the blind in the public schools—to secure companionship and competition with the normal children.

The special class room must be used for drawing, penmanship and other hand work; learning to read embossed print; using the type slate, the Braille writer, and the typewriter. Drawing is done with tacks on pillows; relief maps are studied, and various objects modelled in clay.

Equipment. The special class equipment must include embossed print text books; type slates for each child; Braille writers, typewriters and special paper for embossed writing. The equipment for manual work must depend on the age of the group and the industries chosen—it need not differ extensively from the regular manual training supplies. Relief maps are needed for Geography. Music is furnished by a phonograph or piano.

For young children, sand tables and modelling clay are desirable; also brass headed upholsterers' tacks for pillow drawing, hand looms for weaving, and wood blocks of various sizes are useful.

Embossed books and music scores for the blind are obtained from the various libraries for the blind and are carried through the mails free of charge. A monthly magazine in embossed print is published.

Transportation. Transportation to and from the class is preferably by the street cars or buses, a seeing person acting as guide, in order to establish confidence in the blind children. This problem must be settled for each child individually. Sometimes special school buses will be needed.

Advantage of the special class. When the blind pupils are not completely segregated, but have contact with "seeing" children, the blind cultivate social capacity, become more or less adapted to real life and make real contacts with it. "Seeing" children are urged to treat the blind exactly as they treat

each other as far as possible. However, the normal child acts as an unobtrusive guide, who is available when needed. Membership for the blind is encouraged in regular boy-scout troops and neighborhood clubs. The desire is to develop strength of character, poise, independence and sociability.

Institutions for the Blind

Residential schools for the blind. Probably no type of institution is more progressive or more awake to the needs of its residents than that for the blind. Close coördination between the various state institutions for mutual good and for standardization has resulted in distinct and important advances. Research with a most practical bearing upon the future welfare and happiness of the blind is encouraged and supported. The studies of Professor Samuel P. Hayes at The School for the Blind at Overbrook, Pa. and the Perkins Institute at Boston have given a definite and satisfactory method for determining the potential mental ability of the different individuals and will undoubtedly have a marked effect on the proper placement of the graduates of these institutions. In no group is a greater spirit of unselfishness and devotion to duty shown than among the teachers of the blind.

Perhaps half the states have institutions for the blind. Provision is otherwise made in states which do not possess such advantages, usually through paying the tuition of the child in a school in a neighboring state.

The very young blind children seem to do the best in the residential school, even though they are later sent to day school. This is because the blind are apt to develop certain habits and mannerisms, frequently known as "blindisms" which handicap them in social contacts. Such habits are putting the fingers in the eyes; shaking the hands before the face; biting the fingers or finger-nails; standing in one place and whirling about; rocking the body backward and forward while sitting. The last they will literally do by the hour, thus "enjoying the pleasurable sensation of rocking without a rocker." "It is nature's call for the utilization of stored-up energy." Unless this handicap is removed by the eighth year, educators believe the child will probably not be cured.

The particular purposes of the residential school are (1) removal of as many as possible of the various peculiarities of the blind from the pupils; and (2) as has been noted previously, admission at a very early age increases the possibility of this result.

In addition to eliminating "blindisms" the residential school plans to develop in the blind pupil a definite confidence in finding the way alone and some facility in the use of embossed print. The methods of accomplishing this will be discussed later.

The child must develop freedom from fear of injury, confidence in personal ability to care for himself in most situations. This is accomplished by various safeguards among which we may remember (*a*) placing trees on the playground in definitely laid out rows which may easily be made known to the child, (*b*) and by placing of warning signals such as a narrow brick sidewalk to mark off the tree area so that when the child in his play encounters

this, he is at once warned that the grass plot has come to an end and special care must be used. This permits the utmost freedom in play. By similar devices blind man's buff and other fairly active games may be played in corridors and elsewhere on rainy days with comparative safety. Wherever danger exists, some sort of signal informs the child to be on the watch.

The institution encourages independence of thought and action. Care of the person, even in such intricate matters as tying the tie or combing the hair; or in the case of the girls, the attention to the hair makes the burden to friends much less at a later date; nor is the afflicted one in need of the extra assistance. The same is true at the table where the child is soon taught to eat his meals as do the normal children.

It has been the experience of instructors of the blind that "it is only by building up the bodies of their pupils that they can get from them the maxi-

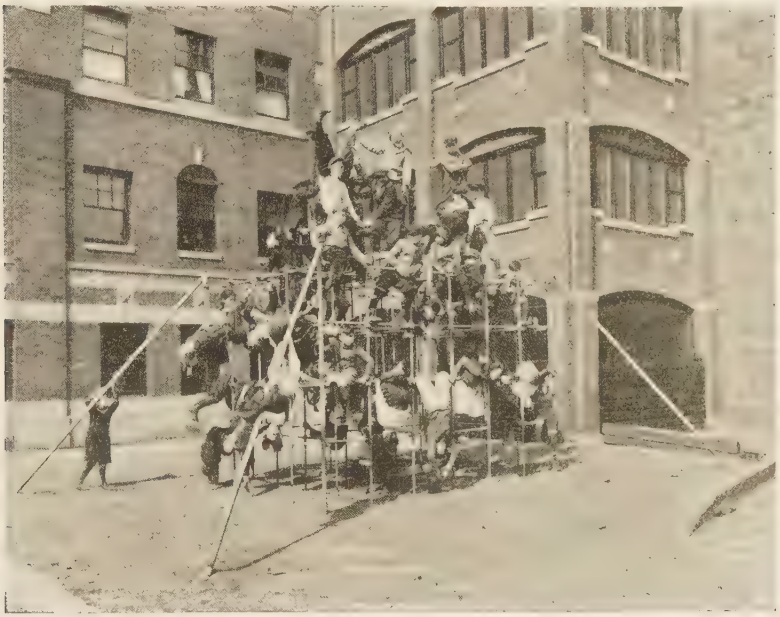


FIG. 156. The Junglegym in action. Note the resemblance to the steel frame of a sky-scraper.

mum mental and manual attainment." Outdoor play of the freest sort is encouraged and safeguarded so that it may be indulged in without fear of injury. Special outdoor play apparatus is often constructed as in the case of the rocking apparatus at Overbrook which is particularly popular with the girls. An overhead trolley ride is more popular with the boys.

Games are considered the very best means of drawing the children out of themselves—making them forget. They often become very noisy and through this means assist their fellows in taking part. Adaptations of

most of the important sports are played, although the personal contact type of sport such as football is not used. Football for the blind consists of kicking, sometimes with a bell or other signal in the ball, but most often without, since the blind depend on their hearing the movement of the ball through the air. Free play is not neglected but the semi-directed type proves most successful. It is interesting to note in this connection that the blind greatly dislike the use of rubber heels either by themselves or their associates because of the difficulty in hearing the footfall.

Worthy of particular mention is the splendid use of track athletics. Some of the important institutions have teams which compete in meets for the blind. Much difficulty was met in the running dashes until the invention of a handle attached by a loop to the cord forming the side of the lane and held in the hand of the runner gave him constant knowledge of his location and the result has been excellent speed by such contestants; fear of falling having been removed. A "low bridge" signal marks the end of the race instead of the tape.

Scouting activities and hikes are not forgotten and certain pupils at Overbrook still remember wonderful week-end camping trips. The swimming pool is used to develop the shoulder muscles. Bowling is a popular amusement and the blind even act as pin boys for the blind. The alleys used, differ but slightly from ordinary ones.

Gymnasium activities are planned to counteract the characteristic tendencies of the group. For example: (1) The blind are prone to exercise voluntarily, by walking back and forth within a given area. Therefore the emphasis in the gymnasium must be toward the development of the back and arms. (2) The blind tend to walk with the head forward. This is because they "thus get their ears, their chief guiding sense, forward, and so are better able to hear their own footfall and the resonance from it." Normal children hold the head erect to see better and farther. The blind lack this incentive and some actually find bright light painful to them.

School gardens have proved most successful as a teaching project and "tend to make the children more normal and to give them further points of contact and sympathy with the outside world though they may never take an active part in such an occupation."

Education of the mind. As elsewhere in education today, the attempt is made to lead the pupils along paths most likely to produce satisfaction for the individual and toward whatever special instruction will later enable the blind child to gain some degree of economic independence.

The mental tests of the Binet type have proved of some value in "seeing" children for determining mental ability and accomplishment, and Professor Hayes has been able to adapt these tests to use with the blind by the substitution of the use of other senses in place of sight. Thus, reading is done by the use of Braille and not ordinary printing, and objects are distinguished by feeling and not sight. The tests are as well worked out as those for the "seeing." Through this means and previous studies as well, it has been determined that the blind child is about two years behind the seeing child and this is shown very early in life. Hayes has also reported that at Over-

brook the children average from four to five years older than children in the same grades in the schools for the "sighted."

Just as in the case of "seeing" children, the IQ's vary considerably. As yet it has not been possible to provide special classes for blind pupils of low mentality and the institutions have accepted them to date because not to do so would deprive such children of any education at all.

Comparison with "seeing" children is obviously an unfair one since different conditions must be met and different and more difficult methods of education must be used.

Program. The academic education must be secured through a special technic for reading and writing. Thus the child has to learn to read Braille, use a type slate and a Braille writer, also a typewriter which is specially adapted through the addition of a raised spacing scale and an extra guide for keeping the paper straight. A Braille shorthand has been developed.

Geography is taught through relief maps. Laboratory work in chemistry and physics can not be done. It will be necessary to have some one read a great deal to such pupils if much educational progress is made, and, in the case of those who attempt to attend the higher schools and the colleges, this necessity must be kept in mind.

Manual education is largely devoted to the useful industries. Thus the girls are taught particularly the household arts, while boys are taught chair caning, broom and brush making, mattress making, shoemaking, and repairing. Both learn loom weaving, rug making, basketry, hammock making, massage, bookbinding, gardening and poultry raising. Broom making is now believed to be unsatisfactory since it is not very remunerative.

Music is emphasized because it is one of the few sources of inspiration available for the blind. Certain of the blind have won considerable reputation in this field. In addition to providing good music for enjoyment, instruction in various instruments is given. Piano tuning is one of the fields in which the blind meet considerable success.

The teachers. Whether the blind should be taught entirely by blind teachers is disputed. The decision depends on the qualifications of the individual teacher. Probably a few "seeing" teachers, at least, should be included in the staff.

Association between the pupil and teacher should be a close one and at the Perkins Institute this is carried even into the living quarters, that the teachers may prove an inspiration outside as well as in the classroom. Patience, special training, and great sympathy must exist in large measure in the successful teacher. Yet she must be able to develop a spirit of independence in the pupil.

After graduation. Where funds are obtainable and mental ability warrants, the pupil may continue education by attending a high school and later a college. In such cases a reader must be provided.

The school must keep in close touch with its graduates and take a constant interest in their various methods of securing a living and at times assist in placing them in suitable situations.

The Blind in the Home

Hometraining. Where the child is of pre-school age and is waiting for admission to some institution it is obvious that effort should be made to provide somewhat of the same atmosphere which exists in the school. Thus the child must be provided with a safe area for free and active play, must be taught to care for itself as far as possible, must have as little fear of personal injury as possible. This last may be secured in the home by exercising particular care in regard to changing the position of furniture, etc. Every effort should be made to have the child engage in such tasks as dusting, helping with the dishes and other activities tending toward useful and physically developing occupations. In this way a series of experiences is permitted which in part makes up for the loss of those customarily gone through by the "seeing" child.

The management of the home as such is not different in the case of the educated blind person. As nearly as possible they must be treated as seeing and yet unobtrusive assistance given when actually needed. In no case must the infirmity be constantly kept in mind. The blind have none too much courage and when a modicum is acquired, it should be fostered.

Summary of Education for the Blind

In brief, the best general practice in the education of the blind seems to be:

1. Home education, mentally and physically, beginning as early as possible, always under expert direction. This should be continued only until a place can be found for the child in an institution for the blind.

2. The child should be placed in the institution for the blind as much before the eighth year as possible. Unless "blindisms" can be cured by the eighth year, they will probably continue. At the institution for the blind the child's mental ability can be determined and suitable plans made for his education.

3. The special class in the public school offers valuable social contacts for the blind child and is desirable because thereby self-reliance is developed. The class is preferable when located in the child's home city at a convenient distance from the child's home. Admission should be preceded by the training possible in the institution for the blind, although a partial equivalent can be given by training in the home under skilled directions.

4. Where special classes are not available, the institution at the earliest possible age offers the best future for the child.

5. Admission to the institution is for education, not for permanent incarceration.

Much of the material for this section has been obtained from the yearly reports of the Pennsylvania Institution for the Instruction of the Blind at Overbrook, Pennsylvania; the Perkins Institution and Mass. School for the Blind at Watertown, Mass.; the Kansas State School for the Blind at Kansas City, Kan.; the Yearbooks of the New York Institute for the Education of the Blind at New York, N. Y.; and through the courtesy of Professor Samuel B. Hayes.

EPILEPTICS

The tendency with epileptic children is either to exclusion or institutionization. A special class for this group probably is not practicable.

Exclusion. No child who has attacks of epilepsy should be permitted to attend the regular school. The effect upon other children is too demoralizing and they are soon constantly watching for such occurrences. Likewise, the afflicted child becomes an object of too considerable interest, and consequent self-consciousness causes aggravation of the nervous conditions of the epileptic. Furthermore, the school has not the facilities for care, or for following these cases from the medical or class-room point of view, to say nothing of the necessity of providing a special person to watch such children during an attack and afterward.

The tendency of the epileptic toward ill and ungoverned disposition makes these cases feared in institutions, where they are considered the most dangerous of inmates. Such unstable temperament makes school attendance of epileptics hazardous to other pupils.

A good standard is to require the physician's certificate before readmission, and assurance that no attack has taken place for the past six months.

Home work. When the physician believes it desirable, a travelling or volunteer teacher can visit the home, if requested by the parents, and assist the child in keeping up with the school work to some extent. Many cases do better if no thought of the school is permitted, because of the nervous reaction increasing the number of attacks.

Chicago plan. Chicago had three classes for epileptics with a membership in each ranging from six to ten. Admission was on medical examination. Some medical attention was given but nothing in the way of specialized treatment. The childen were dismissed from these classes as soon as it was possible to do so. The classes were conducted because public sentiment desires them rather than for any apparent benefit derived.

Objection to a day class. One prominent educator expresses the opinion that "a day class for epileptics is an anomalous institution inasmuch as it implies that children must go about on the street cars to and from schools and be subject to these attacks either in these public conveyances or on the streets."

Feasibility of special classes. It is doubtful if the plan is practicable. The teacher would indeed have to have special training and be thoroughly conversant with the handling of the attacks. She would have to be a person of strong physique and of exceptionally fearless and unworried mind. Ample assistance would have to be available instantly at all times. The work might be interrupted constantly and it is a question if the grouping of cases of this type would not prove disastrous to the progress of the patients themselves, since any attack on the part of any member would certainly remind all of the disease. Furthermore, the nervous tension resulting would not be in keeping with the quiet regime under which this group makes the best progress.

Only in an institution would the plan be really possible and it is not likely to be tried there to any extent.

PARENTAL OR TRUANT SCHOOLS

These schools transplant their pupils from undesirable environments to a well-regulated small community life in which their physical, moral, and mental deficiencies are studied, their defects learned, and remedy applied. These schools are planned for truants and incorrigibles, who usually class mentally as dull normals.

Careful study of all aspects of each new pupil is made. This study includes social investigations, mental tests, and discovery of peculiar difficulties and aptitudes.

In New York schools[1] emphasis is placed on:

"1. Individual classroom instruction;
2. Individual progress and promotion;
3. Use of the honor system;
4. Lack of suppressive discipline;
5. Music, as through membership in the school band;
6. Formation of correct habits;
7. Improvement of physical condition by means of:
   (*a*) Health inspection and supervision;
   (*b*) Physical training through free play, organized games, formal gymnastics, athletics, shower baths twice daily."
8. School spirit.

The boys are expected to conduct themselves as good citizens of a community. The school day is taken up with school and industrial assignments. In the New York schools industrial arts are emphasized and through the following: laundry, bakery, print-shop, farm.

One typical day's program in the Manhattan Truant School is:

"6:00 a.m. Rising bell.
6 to 7 Bathing, free outdoor exercise.
7 to 7:30 Breakfast.
7:30 to 8:50 House work.
8:50 to 12 School.
12 to 12:30 Lunch.
12:30 to 1 Free play and house work for selected groups.
1 to 3 School.
3:30 to 5 Supervised physical training.
5 to 5:30 Free play.
5:30 to 6:00 Supper.
6 to 7 Preparation of home work in classrooms.
8 Bedtime."

Manual training work lasts one hour and a half daily and includes woodwork, chaircaning, basketry.

Saturdays. No school. Five hours of industrial assignments and two hours extra for recreation.

Sundays. One hour for religious instruction. Reading and quiet recreation.

[1] Twenty-third annual report of the Supt. of Schools, N. Y. C.

A similar general plan is used for a day school for delinquents. Boys are not allowed to go home for lunch because of:

1. Lack of proper lunch time care in their own homes.
2. Distances too great.
3. Advisability of keeping boys continually under supervision during the school day.
4. Use of noontime for supervised recreation and habit training through games.

The *teacher* must be a person of even, optimistic, patient temperament with a thorough understanding of the psychology of mental defectives. Previous experience in classroom teaching should precede a period as cadet teacher in a disciplinary class, before the teacher should be given charge of a group. Some knowledge of the selected special types of shopwork and manual training is needed unless a special instructor is available. The teacher must be a leader and friend rather than a stern disciplinarian. Brain and not brawn is desirable.

Such classes help solve adjustment problems through:

1. Care for physical needs.
2. Provision for occupation suitable to intelligence and aptitudes.
3. Patience and justice in dealing with emotional disturbances and tempermental difficulties.

They relieve the classroom teacher from:

1. Discipline problems.
2. Undue attention to exceptional individuals to the neglect of the well-behaved child.

CHAPTER XII

TREATMENT AND CARE OF MALNOURISHED PUPILS

When the average rural or urban school system, upon investigation, is found to have from ten to thirty or an even greater percent of undernourished pupils, as shown by the customary standards of physical examination and comparison with the height-weight-age tables, it is evident that more attention should be given to malnourished children. The work of the school is definitely injured because "Malnutrition produces: (1) Lack of vitality and ambition; (2) interference with growth and development of mind and body; (3) lessened resistance to many kinds of disease."

Malnutrition may be defined as a partially starved condition of the body disclosed by certain non-specific signs some or all of which may appear in a given individual. Therefore, the symptoms of malnutrition are those of partial starvation, and may be divided into four classes: (1) Bodily signs such as paleness; lines under the eyes (often accompanied by so-called "dark fatigue circles"); mouth breathing, flabby muscles; round shoulders; projecting shoulder blades; stooping posture; curvature of spine; prominent abdomen; (2) nervous symptoms such as restlessness, "contrariness," timidity, forgetfulness, inattention, irritability, and even definite mental retardation; (3) general, such as lack of resistance to disease; (4) underweight, at least five percent or more below the figure given for the age and height in the Baldwin-Wood Tables.

Classification. The classifications of causes of malnutrition vary in detail. From Gillett, Cornell, Emerson, and others we may attribute poor nutrition to:

1. Physical defects, such as diseased tonsils, adenoids and defective teeth, which are correctible by fairly simple procedures.
2. Overfatigue. Commonly this cause is given little attention.
3. Insufficient fresh air and sunlight.
4. Faulty health habits, the term being used in its broadest sense to mean faulty habits of living and poor personal hygiene, including insufficient rest and sleep.
5. Improper food and faulty food habits.
6. Poor posture. Authors disagree whether this is a cause, or an effect, but it is probably both, and part of a vicious circle.

In a recent study of a group of less than five hundred children, the Red Cross Health Service in New York found that forty percent had dietary factors as the primary cause of under nutrition. Other factors included

	Percent
Miscellaneous causes	21
Enlarged tonsils and adenoids	15
Economic factors	10
Lack of coöperation	7
Previous medical history	5

Racially, the group was made up as follows:

	Percent
Italian	43
Jewish	22
Irish	13
Polish	10
American	3
Others	9

This group is shown merely as an example of the incidence of various factors. It can not be considered in any way a criterion or guide for other sections even of New York.

School nutrition work depends primarily on (1) sorting out and (2) thoroughly examining underweights. The following classification of underweights is proposed on the basis of cause: (1) pre or post-tubercular, (2) toxic group; (3) unhygienic or wrongly living group; (4) those who have special reasons for malnutrition or those in whom no cause or suspicion of cause can be found. The tubercular child is often undernourished, so is the diabetic; others can be discovered readily. One recognizes that it is natural in certain races or families for the child to vary from our customary standards and, provided disease is ruled out, one is comparatively safe in considering this hereditary cause a satisfactory reason. It is not claimed that every underweight child is malnourished, but he must prove that he is not, or rather, somebody must prove it for him.

The pre- and post-tubercular groups may be self-defined. The pre-tubercular group is understood to be one in which are included children in whom the diagnosis of tuberculosis has never been made and yet among whom the disease might be found to exist at any time, and who might be attacked by the disease at any time—they are fertile soil for the implantation of the tuberculous microorganism, at least.

The toxic group is the familiar "focal infection" class of Billings and others and has for the cause of the condition such defects as diseased tonsils and diseased adenoids, badly decayed teeth, and other infections.

The unhygienic or wrongly living group may be said to include a child, only after disease, as such, has been ruled out. Here may be classified children with faulty habits of living of various types, such as: (1) Lack of home control, as in cases where the parents fail to guide and control their children; (2) overfatigue, which may be caused by lack of sleep from late hours, over-activity, too strenuous school or social program for the given individual, with the social program probably to blame; work for support of the family before or after school: (3) faulty food habits (in the choice, preparation, or eating of foods) as eating irregularly; fast eating; too many sweets; use of tea and coffee; insufficient or no breakfast; too long interval between meals; insufficient food; improper food; (4) faulty health habits such as lack of

fresh air and exercise, insufficient sleep at night and absence of, or too brief rest period in the daytime.

The special group includes (1) those children with familial or racial reasons for variation from weight standards and who are not classed as malnourished at all; and (2) those children with unusual diseases such as pellagra, beri-beri and other definite disease entities.

The type of community has a definite effect on the causes of malnutrition. Thus the nervous type of malnourished child is more likely to appear in the city, while the underfed country child more commonly has as the cause of malnutrition neglected toxic foci or improper food. Nevertheless no single cause is usually peculiar to one section or size of community except in such instances as marked infestation of a whole region with the hookworm, or in regions where certain dietary indiscretions are practised by the entire section, usually for economic reasons, as in the case of pellagra (if the "corn theory" is accepted).

That underweight and physical defects are found with significant frequency, in the same individual was shown in Detroit where examination of 8,000 pupils, 15 percent or more underweight disclosed the following percentages of physical defects:

	Percent Having Defects
Tonsils, enlarged or infected	50.8
Defective teeth	22.7
Anemic	7.3
Mouth breathing	9.2
Faulty vision	9.3
[1]Heart, abnormal	4.8
[1]Lungs, suspicious	3.1
Defective hearing	2.0
Enlarged thyroid	2.9
Enlarged anterior cervical glands	1.1
Skin diseases	1.1
Orthopedic defects	0.6
Deformed palate	0.1

[1] Recommended for further more careful examination.

TREATMENT FOR MALNUTRITION

The plans for treatment are based on (1) discovery of cases; (2) removal of causes; (3) improving the bodily functions, usually by regulation of some factors in the daily life.

This program combines (1) weighing; (2) definite medical measures; (3) definite educational measures.

Weighing

The health measures include regular weighing as often as the case indicates, never less frequently than once a month and preferably at least once a week. If conditions permitted, daily weighing at a regular hour would be of practical use.

Medical Measures

Thorough medical examination is needed upon suspicion of malnutrition and as frequently thereafter as the situation requires. Any unexplained loss of more than a very few pounds weight should be followed by another thorough medical investigation. A medical examination ought to be made monthly, for here we are dealing with the definitely unhealthy. Special attention must be paid to the chest, posture, teeth, throat, and nose.

Laboratory work must not be neglected. If suspicion of tuberculosis arises, examination of the sputum is not only desirable but absolutely necessary and one negative specimen should not satisfy. Frequent trials to find the Koch bacillus must be made.

X-ray pictures of the chest, together with fluoroscopy are often needed. If the case is handled medically by a clinic this will be provided. If the school insists on assuming full responsibility, then it must provide as good treatment as is possible at the best clinic in the community.

Educational Measures

If the medical findings are to be put to practical use then it is necessary that the parents should become familiar with them through notification and follow-up work, and at times, be guided in methods of meeting the situation. Both parent and child must often be given definite teachings if the child is to be improved. This is usually done through the medium of the nutrition class which will be discussed later.

A good health education program includes adequate instruction on nutrition. Some cases of malnutrition may be prevented through the knowledge derived from this teaching. Provided the undernourished children are discovered early, the question of who shall treat them is unimportant.

Personnel of Treatment and Care of Malnourished Pupils

Such nutrition work in the school is best headed by a physician who functions as examiner. Someone should make his notes and keep the records and this may be done by teacher, principal, special worker, or clerk. It is false economy to use the physician's limited time, for writing.

Nutrition workers and nutrition teachers are frequently used in this work. They are most successful when they have previously graduated as nurses although this technical nurse training is not absolutely essential. They must also have thorough training in the detecting of the ordinary signs of malnutrition, and in practical dietetics. They must be able, above all, to lend practical aid to the family with limited purse for it is useless to recommend diets which cannot be purchased. They must understand the organization of clinics, including preparation and care of suitable records. Such training can not be obtained in a week or two of lectures.

If they are to handle the educational end also, they must have had definite training in health education. Suitable courses are obtainable in both summer and regular sessions at important educational centers. Unless they have had this training or its equivalent, the educational side should

be left to an interested and intelligent teacher who would be supplied with the ideas to be developed on sound educational principles.

Like every person connected with school health work, the nutrition worker must have a fondness for children, definite patience, and a true love for the work. She must be able and willing to subordinate herself to the general program. It has been found too frequently that the nutrition worker desires to be endowed with too much power. She must consider herself the agent of others, rather than a free agent to carry out such ideas as may simply appeal to her fancy or her pride.

Frequently the school nurse will have to perform the duties of the nutrition worker and is capable of doing so, with the possible exception of the teaching. If she wishes to teach, she must prepare herself through courses in an educational institution.

The discovery of the malnourished is an activity which requires the coöperative efforts of all persons in teaching or health work in a school system. The medical inspection as such must lead to the discovery of a number of such children but there are others who must depend on the teacher or the nurse for revealing their needs, although the diagnosis of the cases, finally, may be made by the physician. Where medical service is inadequate for any reason, most of the burden of the nutrition work falls quite naturally on teachers and nurses. The close contact of the teacher with her pupils, makes it possible for her to observe symptoms, such as nervousness, which the pupil might not exhibit during a comparatively brief examination by a busy medical inspector. Such information, brought to the attention of the school physician, makes it possible for him to study his cases with greater accuracy. Family physicians and public clinics discover and treat many of the cases of malnutrition among school children, the school cooperating as requested by the physicians or clinics. If medical or clinical care of children is not available, the school should, if possible, provide some health and medical service to prevent complete neglect.

Nutrition Classes

One of the popular forms of handling malnourished children is through nutrition classes. Of these there are various types:

1. Philadelphia provides special classes for the malnourished and also for the undernourished-tubercular children. A definite distinction is thus made.

2. Other cities provide fresh-air or open window classes (*vide* section on such classes, page 335). These types of nutrition classes are organized on the basis of the proper regime for the tubercular child with emphasis on fresh air, frequent feedings including milk, rest periods; and classroom instruction which tends to lay special stress on the importance of correct living and hygiene; and through all the program, a restful atmosphere avoiding the stress and strain of the usual classroom. *Health first* is emphasized. Almost every city school system of importance has special classes of this general type, although they may vary in details. Between the above intra-school type of nutrition class and another, there exists some confusion.

Date _____

To- Los Angeles City Schools:-

I hereby give permission to have my child _____

examined for the Nutrition Class in the _____School.

_____
Signed by Parent or Guardian

FIG. 157. Permission slip. 5½" × 8½". Simple. Can be printed on the school mimeograph.

3. The other type of nutrition class may be considered an extra-school or after-school project. It is usually started by certain private citizens who provide special funds for a demonstration class and clinics of the type popularized recently. Such work is chiefly of advantage because of the public interest aroused in the subject of child health through the fact that a startling percentage of underweight children are discovered.

In this type of work, certain schools or groups are selected and thorough examinations are made of all those who are a certain percent or more underweight, (usually 7 percent). Definite and careful records are made, usually of considerable length, and recommendations are made to the parents; special facilities for treatment often being provided for the time being by local medical men or clinics.

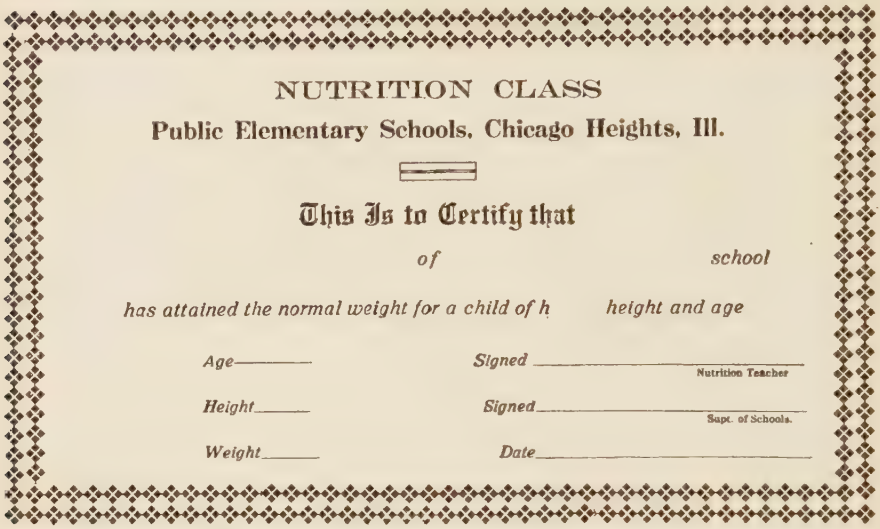
Definite health teaching is given both to mothers and children at the class meetings which are held at least once a week. Full cooperation with the clinic is expected of parents. Unsuitable diets and daily routine are corrected and the children's health is usually improved. Whenever children fail to reach the expected gain in the weekly weighing, definite follow-up work is done and the cause corrected.

The difficulty with such work seems to be that after the demonstration is over, a slump in interest and activities often begins. The money which might have been used in the school system for improving the health work has been spent in the demonstration and no funds remain to carry on the work. The records need care and no one keeps them up. Having exerted itself, the public is now contented to abide by its good works. Occasionally a lasting health program is inaugurated as the result of a demonstration clinic.

In certain school systems, on the other hand, definite special nutrition classes, after school or in school, are given suitably graded instruction in proper diet and hygiene; and through the teacher, nurse, or nutrition worker, contact is established with the home and improvement is made, especially if the work is handled by a properly qualified person. Special individual needs of the malnourished are met. Health literature is often distributed.

Permission of the parents should be obtained before enrollment; an excellent form for such a purpose is Fig. 157.

Sometimes diplomas are given.



NUTRITION CLASS

Public Elementary Schools, Chicago Heights, Ill.

This Is to Certify that

of *school*

has attained the normal weight for a child of h *height and age*

*Age*_____ *Signed* _____
Nutrition Teacher

*Height*_____ *Signed*_____
Supt. of Schools.

*Weight*_____ *Date*_____

FIG. 158. Diploma. A light brown card 5″ × 8″ printed in brown ink. Parents take great pride in such awards.

Many school systems are unable to provide these special programs and yet have done satisfactory nutrition work. The general principles of the nutrition clinics are applied; sorting is done by means of weighing; special examinations of the underweights are made by the school physician and the children are sent to family physician or suitable clinic for further study. This means coördination with other medical groups locally, which is highly desirable. If the child is definitely shown not to have any disease or health defect, then the handling of the case depends on family tendencies in regard to weight (also racial) or whether health habits are incorrect, in which case special instruction is attempted, no other cause being found. No more extensive records than a good cumulative health card and a chart of weighing are needed, and results are often satisfactory. This method can be carried on from year to year at a minimum of expense and while not sensational, offers a method useful where funds are limited.

Certain types of records used in nutrition classes are presented here. The size should depend on the size customarily used in the other health records so that all can be placed in the same folder or envelope. The "temperature chart" method of recording weight used in the Wood-Rowell[1] Health and Growth Record (*cf.* page 171) gives a more rapid general impression of the child's progress than mere figures but takes a little longer to make up. The amount of information regarding the child must depend largely upon how

[1] This record was planned particularly for nutrition work and has been well-received by nutrition workers. Obtainable from the Bureau of Publications, Teachers College, N. Y. C.

27 BOSTON PUBLIC SCHOOLS

Height and Weight Record for Open-Air Class and Malnourished Pupils

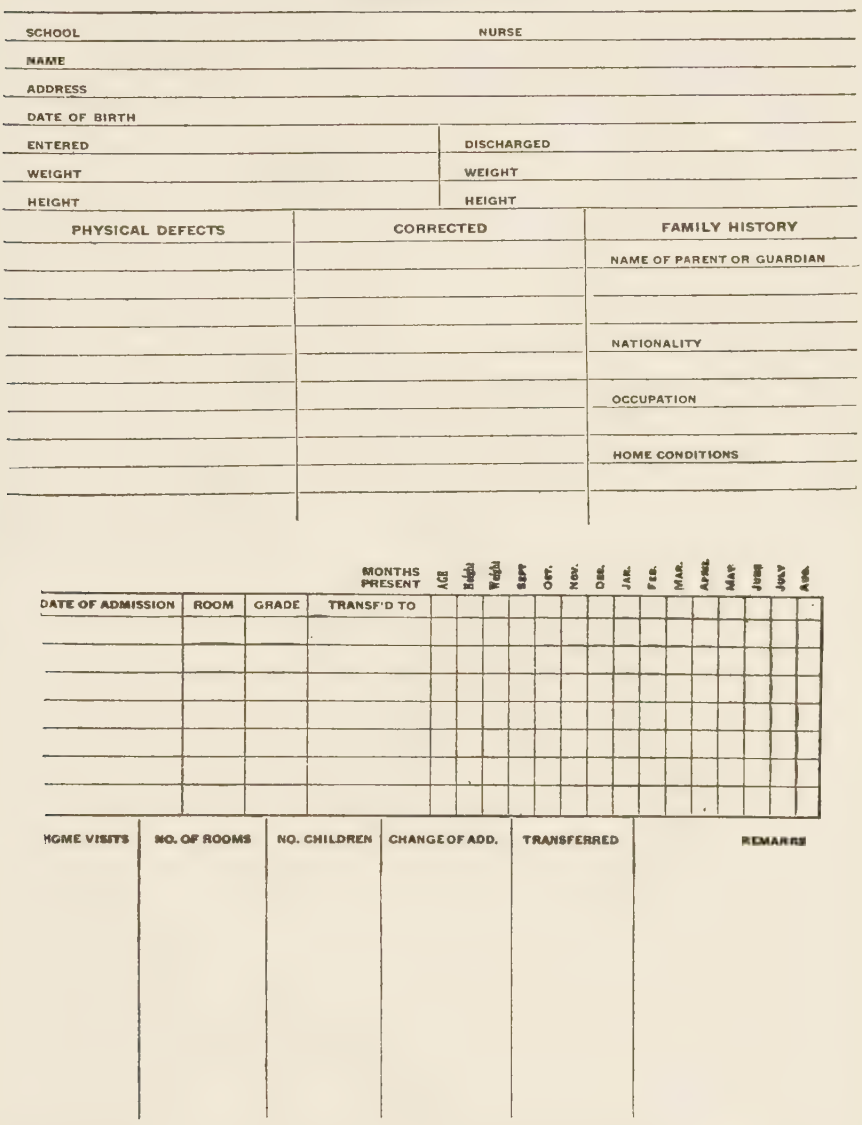
Name _____ School _____ Grade _____ Age _____ Date _____

	NORMAL		SEPT.		OCT.		NOV.		DEC.		JAN.		FEB.		MAR.		APRIL		MAY		JUNE		AV. GAIN	
YEAR	H.	W.	H.	W.	H.	W.	H.	W	H.	W.	H.	W.	H.	W.	H.	W.	H.	W.	H.	W.	H.	W.	H.	W.

FIG. 159. Both sides of Boston, Mass. Record, White card 5′ × 8″, provides space for monthly weighing and measuring height and for notes on physical defects. See page 394 for opposite side.

FIG. 159. *(Continued.)*

much is contained on the regular health card since duplication is not necessary. Clinic findings are best kept on the nutrition card. It is possible to



NUTRITION CLASS

SCHOOL NURSE

NAME

ADDRESS

DATE OF BIRTH

ENTERED DISCHARGED

WEIGHT WEIGHT

HEIGHT HEIGHT

PHYSICAL DEFECTS	CORRECTED	FAMILY HISTORY
		NAME OF PARENT OR GUARDIAN
		NATIONALITY
		OCCUPATION
		HOME CONDITIONS

DATE OF ADMISSION	ROOM	GRADE	TRANSF'D TO	MONTHS PRESENT	AGE	Height	Weight	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.

HOME VISITS	NO. OF ROOMS	NO. CHILDREN	CHANGE OF ADD.	TRANSFERRED	REMARKS

FIG. 160. Both sides of Springfield, Mass. Record. Brown card 4″ × 6″. Note record of physical defects and provision for monthly weighing.

use the regular school health record card. In any case the ideal card is the one which best meets the needs of the group for which it is to be

used. Simplicity is essential and, until more extensive provision is made for clerical work, the record must be as brief as possible and yet give needed information.

Special Provision for Weighing, Measuring and Plotting of Charts

The minimum equipment of a nutrition class of any type must be scales, provision for measuring height,[1] weight-height-age tables (Baldwin-Wood),

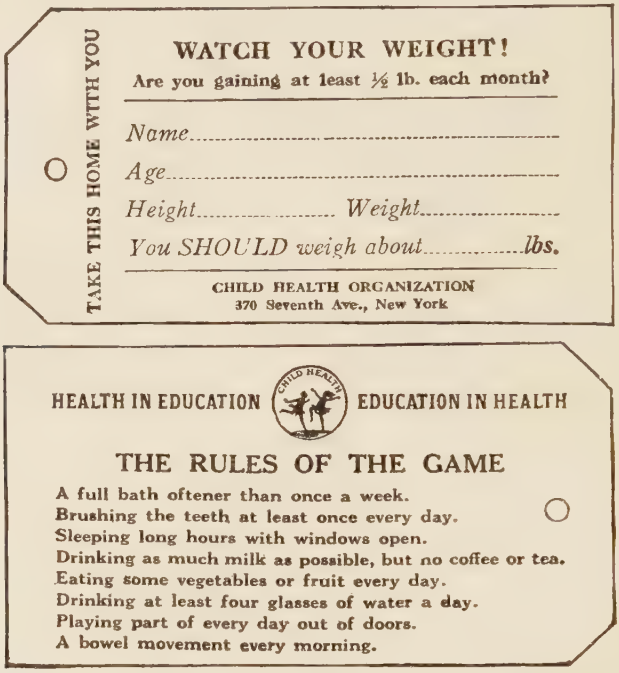

TAKE THIS HOME WITH YOU
WATCH YOUR WEIGHT!
Are you gaining at least ½ lb. each month?
Name.....
Age.....
Height..... Weight.....
You SHOULD weigh about.....lbs.
CHILD HEALTH ORGANIZATION
370 Seventh Ave., New York
HEALTH IN EDUCATION
CHILD HEALTH
EDUCATION IN HEALTH
THE RULES OF THE GAME
A full bath oftener than once a week.
Brushing the teeth at least once every day.
Sleeping long hours with windows open.
Drinking as much milk as possible, but no coffee or tea.
Eating some vegetables or fruit every day.
Drinking at least four glasses of water a day.
Playing part of every day out of doors.
A bowel movement every morning.

Fig. 161. Both sides of the popular "Watch your Weight" tag, 2¼" × 4". Brown tag.

charts for recording findings, at least for special individuals, preferably for the class as a group. Furniture suitable for the pupils' ages, in size and construction, must be available. Much improvement in results is likely if health charts of the type provided by the Joint Committee and by the American Child Health Association, and other equally good exhibits are placed on the walls in the school.

Weighing should be done weekly instead of monthly, and every possible device used to encourage the children to strive to gain. Stars on the Weight charts for those who attain the normal range, and such devices as the "Watch Your Weight" Tag are helpful. Some prefer the "Milk Bottle" chart (National Dairy Council) or "Cho Cho" (American Child Health Association).

Individual weight charts may be kept if desired. The plotted charts are excellent for this purpose. These are described in the section on weighing.

Except as noted, weighing and measuring are done as in regular school classes.

[1] See section on Weighing and Measuring, page 84.

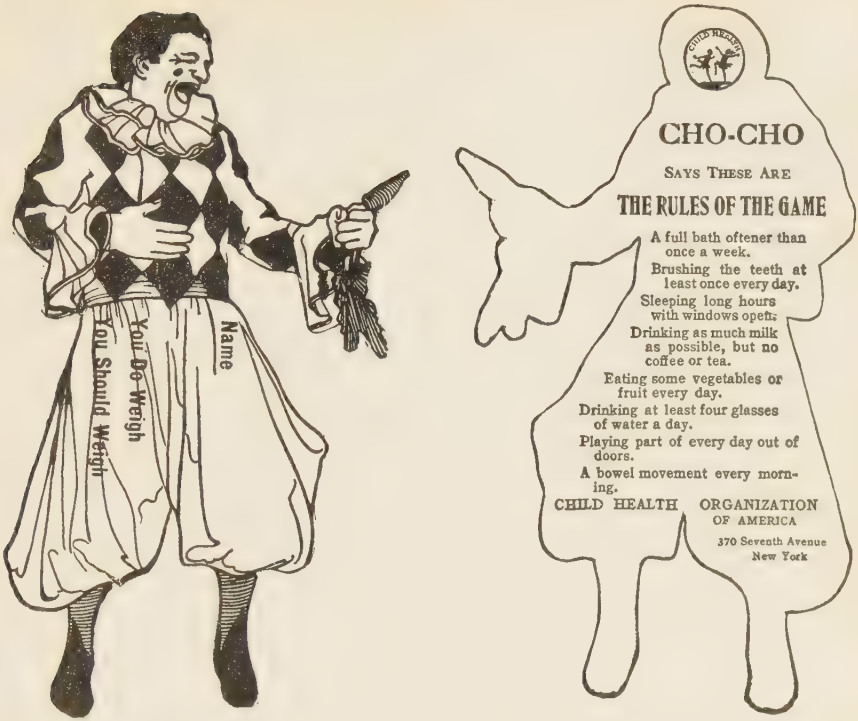

You Should Weigh
You Do Weigh
Name
CHO-CHO
SAYS THESE ARE
THE RULES OF THE GAME
A full bath oftener than once a week.
Brushing the teeth at least once every day.
Sleeping long hours with windows open.
Drinking as much milk as possible, but no coffee or tea.
Eating some vegetables or fruit every day.
Drinking at least four glasses of water a day.
Playing part of every day out of doors.
A bowel movement every morning.
CHILD HEALTH ORGANIZATION OF AMERICA
370 Seventh Avenue
New York

FIG. 162. Both sides of the Cho-Cho (Child Health Organization) tag. The beloved Health Clown assists in the weighing program.

INDIVIDUAL TREATMENT IN NUTRITION CLASSES

Health teaching may be successful in the nutrition class; and with adequate medical service, defects may be discovered. Success may be attained only if defects which are discovered are given proper medical attention. The school's policy, as elsewhere, will be based on the "no duplication" plan.

This last point of view may at times require broad interpretation where the interests of the child and the community demand that the school assume this duty of providing medical attention. In such instances treatment should be delegated to other suitable organizations as soon as is feasible.

In most cases, when one or two home visits have been made, the existence of nutritional defects explained and the need of treatment emphasized, (possibly the mechanism of securing it explained), the school is not justified in further using its limited personnel for uncoöperating families, where help is so needed by others who receive the suggestions in a more cooperative manner.

For obtaining some idea of the health practices of pupils the following forms are useful:

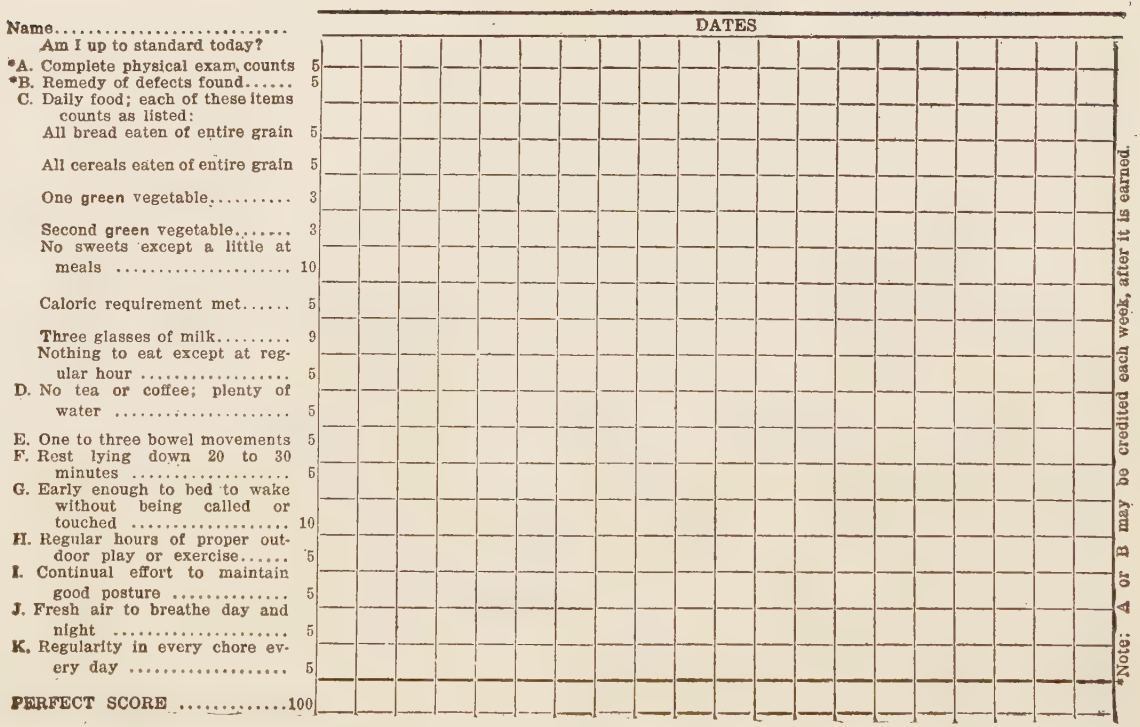

Name.....
DATES
Am I up to standard today?
*A. Complete physical exam, counts 5
*B. Remedy of defects found..... 5
C. Daily food; each of these items counts as listed:
All bread eaten of entire grain 5
All cereals eaten of entire grain 5
One green vegetable..... 3
Second green vegetable..... 3
No sweets except a little at meals 10
Caloric requirement met..... 5
Three glasses of milk..... 9
Nothing to eat except at regular hour 5
D. No tea or coffee; plenty of water 5
E. One to three bowel movements 5
F. Rest lying down 20 to 30 minutes 5
G. Early enough to bed to wake without being called or touched 10
H. Regular hours of proper outdoor play or exercise..... 5
I. Continual effort to maintain good posture 5
J. Fresh air to breathe day and night 5
K. Regularity in every chore every day 5
PERFECT SCORE 100
*Note: A or B may be credited each week, after it is earned.

FIG. 163. Yellow card 5″ × 8″. Both sides printed. A health habit score for under-weights. On the back are directions how to increase one's score.

Form 846 5-8-23

HOW TO REACH YOUR IDEAL WEIGHT

	1.	Have a physical EXAMINATION by a physician if possible.
AIR	2.	Breathe FRESH AIR. Be outdoors as much as possible during the day and sleep with windows open at night.
	3.	Be in BED at the same time each night. Do not cover your head with bed clothes. Find out how long you should sleep.
REST	4.	Take a rest period of not less than 20 minutes at about 10 A. M.
	5.	Take a second rest period in the afternoon.
DIET	6.	See that your meals include the following EVERY DAY: (a) TOTAL AMOUNT of food eaten should equal the calories you need according to your ideal weight. (b) VARIETY of PROTEINS which will permit of proper growth. (c) CEREALS and breads made of the WHOLE GRAIN; such as, whole wheat, graham, bran, rye, pumpernickel breads, rolled oats, unpolished rice, cracked wheat cereals, etc. (d) At least two green VEGETABLES (potatoes do not count). (e) MILK—not less than 1½ pints, nor more than one quart. One glass to be taken in the mid-morning about 10:30, and a glass in the mid-afternoon about 3:30. (f) Some fresh raw FRUIT. Stewed fruit is also good. Should be eaten at meal when coarse vegetables are not eaten. (g) Drink WATER between meals, at least 4 glasses. (h) Do not drink tea or coffee. Do not eat candy on an empty stomach; eat it in small quantities as a dessert.
EXERCISE	7.	Do your corrective exercises (if you have them assigned) every day. Take a cold shower or bath and rub-down with a rough towel.
	8.	Get a reasonable amount of exercise in your duties and play. Do not engage in violent or exciting activities.
POSTURE	9.	Maintain good posture by standing erect, on both feet, with chest high.
	10.	Learn to sit correctly; do not sit in a cramped position at any time, especially when eating or reading.
CLOTHING	11.	Wear sufficient clothing, especially on the arms and legs in cold weather. Clothing should be loose and supported from the shoulders, close to the neck.
	12.	PARTIES or MOVIES should be attended not more than once a week, and preferably in the afternoon.
AMUSEMENTS	13.	MUSIC or dancing lessons outside the regular program will prevent proper gain in weight and should be discontinued until you are up to ideal weight.
	14.	Have a BOWEL movement at the same time each day; probably most convenient time is immediately after breakfast.
	15.	Brush TEETH after each meal and before going to bed.
HYGIENE	16.	Make an EARNEST EFFORT to do each duty at the SAME TIME each day and you will get best results.
	17.	LEARN all you can about the care of your body and let yourself BE HAPPY in doing what is best.

DEPARTMENT OF CORRECTIVE PHYSICAL EDUCATION
LOS ANGELES CITY SCHOOL DISTRICT
Sven Lokrantz, M.D., Supervisor
Nutrition Division.

FIG. 163. (*Continued.*)

LOS ANGELES CITY SCHOOLS

DEPARTMENT OF CORRECTIVE PHYSICAL EDUCATION

HOME NUTRITION REPORT SCHOOL

	Evening Exercise	Bed Time Hour	Rising Hour	Morning Exercise	Rub Down	Food for Br'kfast	Rest at School	Milk	Food for Dinner	Evening Rest 15 min.	Food for Supper	How many Movies Attended
Thurs.												

FIG. 164. White card $3\frac{1}{2}'' \times 7''$. A record of each day's activities.

SCHOOL FEEDING

In Europe school feeding has long been recognized as correct. The enforced attendance act in 1870 in England brought together so many emaciated and sickly children who would otherwise have remained hidden in the slums, that the need was seen and volunteer feeding societies came into existence.

France began this work earlier; and it is still done largely by voluntary contributions and public subsidies. Other European countries have practically the same history.

Philadelphia began the penny lunch in 1898 but it was not till 1904 and 1905 that educators definitely urged it. In 1898 a definite school lunch was established in New York at two schools.

One must carefully distinguish between *school lunch* and *school meals*. The one is a general service provided to enable the pupil to purchase conveniently, desirable food at a very moderate expense and eat it in a suitable place. The other is provided in the case of the malnourished either at a small charge, or if necessary, free.

The use of milk and of frequent feedings has already been discussed in the section on fresh-air classes. The school lunch often provides the noon meal for a pupil. Where both nutrition class and school lunch are provided in the same school, the feeding of the nutrition classes may be carried out through the same personnel as the school lunch. The school lunch should in all cases serve only simple, inexpensive, attractive, suitable foods, that it may be somewhat of a model for the home to follow. The tendency to emphasize the starchy foods, pastry and sweets is deplored by physicians and dietitians as well as by thinking persons in general. The school lunch is often poorly supervised and is more or less of a commercial scheme, provided by contract. Some believe candy and sweets should not be sold in school lunch rooms; others prefer to do so because of the

belief that children will buy them anyway; and so pupils should be provided with an opportunity at least to purchase a good quality of product.

School lunches are usually started by some private organization such as the Red Cross, Parent-teachers Association or a woman's club when the need is recognized; and are later taken over by the school system when the value has been recognized, usually within a year or two. They function best under the direct management of the school system, with supervision by the nutrition teacher or dietitian. Lunches should be expected to make little or no profit but should be self-supporting.

No child who needs it should go unprovided with food at school. Investigation of home conditions will determine who can pay. Some sort of a ticket system avoids the "charity" atmosphere which is undesirable.

School Feeding in Great Britain. Sir Charles Newman of England, Ireland and Wales, in the Annual Report of the Chief Medical Officer of the Board of Education for the year 1923, stated the following regarding school feeding:

"*Dietaries under the supervision of Medical Inspector:* (*a*) School feeding resolves itself into supplementing the protein portion of the daily diet as sufficient starchy food is available at home. The type of meal suggested is—cocoa made with milk, or milk, or bone broth, or vegetable soup—eaten with bread and butter brought from home.

"(*b*) Every meal served in London for a necessitous child contains at least 25 grammes of protein.

"(*c*) Advantages. Especially observed in long distance and rural children.

"There can be no doubt that the school benefits the child medicinally and educationally.

"(*d*) Milk and Cod Liver Oil Feeding. Since 1908 milk and Cod Liver Oil have been given debilitated children—provided free when necessary and decided upon record of height and weight and clinical record. Reweighed every three months by school doctor.

"1. All around improvement in weight and nutrition.

"2. Children more alert and energetic.

"3. More attentive and receptive.

"Attention needed as to quality of food provided."

Newman's opinions are in accord with the views expressed in United States.

Dietary aspects of the school lunch. Emphasis must be placed on milk, eggs, and leafy vegetables because of their growth-promoting qualities (vitamins) which are lacking in many other foods rich in carbohydrates, proteins, fats, and minerals.

School systems vary in types of menus. In general the menu should contain one or more or the following foods or food items:

1. Warm drink or warm soup.

2. Warm meat or vegetable or protein dish such as meat stew with vegetable, baked beans (some question the desirability of beans), macaroni and cheese, vegetable combinations.

3. Bread or rolls (preferably of whole wheat or rye); simple sandwiches, such as peanut, cottage cheese, etc.

4. Simple puddings, such as rice, chocolate, tapioca, bread and butter pudding. Fruit. Simple cookies, such as oatmeal cookies.

5. Milk of suitable quality, usually Grade A, pasteurized if possible.

6. Possibly sweets. If so, simple candies and candy crackers.

At all times, racial and religious traditions should be carefully considered in arranging menus. The cost per dish should be five cents or less if possible. A meat or protein dish may have to cost up to ten or fifteen cents; if it costs more, its use will be limited. In rural districts the lunches offer a definite, and possibly the sole, means of teaching home economics or nutrition. The equipment need be only a few cooking utensils; some sort of stove, probably already in the school; and some place to store the food. If desired the pupils can pay a moderate sum and the material be purchased in the vicinity of the school.

In a *one-teacher* country school there should be "a small room, not less than 8 by 10 feet, for a workshop, for instruction in cooking and for the preparation of refreshments when the school is used, as it should be, for social purposes." This will meet the requirements for a room in which to prepare the school lunch.

Standards for lunches. Literature on the school lunch is available from the bureaus at Washington and from state health departments.

The school lunch should be able to meet successfully the competition of any nearby quick-lunches to secure the patronage of the pupils at the noon meal. If this can not be done, it will be very evident that the lunch is not providing the type of service or food desired, or desirable.

The Child in School[1] sets up the following standards for the school lunch:

"1. The food.

(*a*) Must be of good quality and well cooked.

(*b*) Must be suitable for the child. The menu should contain no foods which are not to be recommended for the average school child. Religious preferences and racial customs should receive due consideration in the choice of food.

(*c*) Should be as inexpensive as good quality and proper preparation will permit.

(*d*) Should offer good variety from day to day. This is preferable to having a more extensive but unvaried menu. One hot dish and one or two simple kinds of sandwiches, possibly with the addition of cooked fruits or simple puddings, will be sufficient for a given day. Milk should always be served.

(*e*) Should be simply but attractively served.

(*f*) Cool, pure water should be easily available.

2. The room.

(*a*) Should permit the child to eat his lunch seated comfortably without crowding.

[1] Wood, T. D.: The Child in School, p. 17, Funk and Wagnalls Co., 1924.

(*b*) Should be bright and sunny.

3. The time allowed for eating.

(*a*) The child should always be given plenty of time to eat his food slowly, and should be obliged to use the time for this purpose. Too many lunches are hurried because the pupil wants to play or study for the next lesson.

"4. A fund should provide lunch for those who are unable to pay for it. This fund is usually raised through charging slightly more than cost to children who can pay. Any child's inability to pay should be made inconspicuous by unobtrusively providing him with a ticket or other means of letting him appear to pay."

Milk lunches. The mid-morning milk lunch is found in most school systems. Here the children, usually up to about the fourth grade, are provided with a pint of excellent milk each day about mid-morning, but neither before nor after a recess period. One or two simple crackers may accompany the milk.

Some attempt has been made to disguise the taste of the milk with preparations of chocolate.

Certain difficulties arise because: (1) Some children have an idiosyncracy for milk; (2) the milk lunch destroys the appetite of some children for the noon meal.

Milk lunches are most satisfactory for: (1) Teaching the child to drink milk. He will often do this in school when he will not at home.

2. Building up undernourished children, particularly those who have not had an ample nutritious breakfast before going to school.

A form showing suggestions regarding the care and distribution of milk is printed here:

Form 860

DEPARTMENT OF CORRECTIVE PHYSICAL EDUCATION
LOS ANGELES CITY SCHOOL DISTRICT
NUTRITION DIVISION

SUGGESTIONS FOR THE CARE AND DISTRIBUTION OF MILK IN THE SCHOOLS

1. The milk should be delivered in ½-pint bottles and held at a temperature well below 60 degrees Fahrenheit until a few minutes before serving time.
2. It should be served at least 1½ hours before the next regular meal, and in some cases it is well to have the temperature of the milk raised to 98 degrees at serving.
3. A central place for distributing the milk in a pleasant and quiet spot where the children may take their milk in a leisurely manner is advisable for the best results.
4. Certified milk is best. When used, must be handled under personal supervision of Home Economics teacher, or some one authorized by the Corrective Physical Education Department.
5. Two graham crackers served with the milk adds to its palatableness and makes a balanced meal.
6. When the child's family or local P. T. A. cannot handle the cost of milk, there is a general P. T. A. fund which may be drawn upon. This matter is under the discretion of the school principal.

FIG. 165. $4\frac{1}{4}'' \times 8\frac{1}{2}''$ printed slip.

For checking the results of milk lunches the following card is useful:

PITTSBURGH PUBLIC SCHOOLS — DEPARTMENT OF HYGIENE

MILK RECORD CARD — DATE _____ SEM. _____

Name _____ Age _____

Res. _____ School _____ Grade _____

Nutrition* _____ Mentality** _____ Ward _____

Convalescense _____ Malnutrition _____ Inanition _____ Incipient T. B. _____ Amt. _____

Discontinued _____ Reason _____ Resumed _____ Discharged _____

WEIGHT RECORD															HEIGHT			INCREASE			RATING	
1 Mo.	Lbs.	Ozs.	2 Mo.	Lbs.	Ozs.	3 Mo.	Lbs.	Ozs.	4 Mo.	Lbs.	Ozs.	5 Mo	Lbs	Ozs	Mo.	Ft.	In.	In.	Lbs.	Ozs.	Nutr.	Ment
1			1			1			1			1			1							
2			2			2			2			2			2							
3			3			3			3			3			3							
4			4			4			4			4			4							
5			5			5			5			5			5							

*V. Good, Good, Fair, Poor, V Poor — **Average, Bright, Custodial, Exceptional, Dull

S. M. I. _____ NURSE _____

FIG. 166. White card, 4″ × 6″. Note that weekly weighing is planned. Nutrition cases should *always* be weighed each week.

Fall River, Mass. uses the following series of forms in milk work:

TO THE BOARD OF HEALTH

Fall River, Mass., _____ 19__

I hereby recommend the following pupils as worthy applicants for half pint of milk served daily at school:

Name	Address	Age	Grade	School

Signed, _____

FIG. 167.

	School	Age	Grade	Date	Ht.	Wt.	Under Wt.
Surname	1st name						
Address							
Began milk							

FIG. 168.

Surname				
Address	Father		Vocation	Wage
	Mother		"	
Date	Children	Age	Vocation	Wage
Insurance	1.			
Rent	2.			
Debts	3.			
Other Expenses	4.			

FIG. 169.

_____19__

Name_____

Address_____

I agree to pay for glasses at the rate of_____per week to the Board of Health.

Signed,

_____

Parent.

FIG. 170.

The importance of fruit in the school lunch is shown by Chaney[1] who studied a group who were 7 percent or more underweight according to the Wood standards; were free from hampering defects; were required to eat the school lunch throughout a period of eight weeks; and were not influenced by change in home diet. Feeding was done at the forenoon recess. In certain groups an orange of medium size was given in place of one-half pint of milk. Children of one group were given one-fourth pint each of orangeade (concentrated bottled orange juice). Two graham crackers were added for each child in all except the control group. One group was given both orange and milk as well as graham crackers. The results as measured by gain in weight showed that all groups gained more than the controls; that the group having the orange gained better than those having the milk and orange, or the milk. The concentrated orange juice gave less improvement than the fresh oranges. Chaney draws the conclusion that milk is not the only food valuable for the midmorning lunch (this being the type of lunch studied).

School feeding as a definite remedy for malnutrition. Feeding is only one portion of the cure but should be coordinated with the rest of the nutrition program. Proper feeding has proved, in many school systems, to be a cause of distinct and definite improvement in the undernourished. It certainly overcomes the handicap of unsatisfactory home diet so frequently found in congested districts.

School feeding (1) is a cure for malnutrition; (2) may also be a preventive measure. Medical service is somewhat limited in its scope at present; the school lunch can reach every pupil in the school.

[1] Chaney, M. S.: American Journal of Diseases of Children, Oct., 1923.

Food for School Boys and Girls

PLAN MEALS LIKE THESE

BREAKFASTS	DINNERS	SUPPERS
Orange Rolled Oats and Milk Bread and Butter Milk	Pot Roast of Beef Potatoes—Spinach Bread and Butter Ice Cream	Cream Toast Apple Sauce Rolled Oat Cookies Milk
Shredded Wheat and Milk Poached Egg on Toast Toast and Butter Milk	Vegetable Milk Chowder (Potato, carrot, onion, cabbage) Bread and Peanut Butter Dates	Rice and Milk Bread and Butter Baked Bananas Milk

Stewed Prunes Farina and Milk Bread and Butter Milk Cocoa or Milk	Rice and Meat Loaf Creamed Carrots Bread and Butter Bread Pudding	Scrambled Egg Bread and Butter Molasses Cookies Apple Sauce
Rice and Raisins and Milk Toast and Butter Milk	Fish Chowder Buttered Beets Bread and Butter Oatmeal Cookies	Baked Potato Bread and Butter Custard Milk
Baked Apple Cornmeal Mush and Milk Bread and Butter Milk Cocoa or Milk	Poached Egg Spinach Bacon Baked Potato Bread and Butter Junket	Split Pea Soup Lettuce Sandwiches Gingerbread Milk

Farina and Milk Toast and Butter Crisp Bacon Milk	Baked Fish Baked Potato Stewed Tomato Bread and Butter Rice Pudding	Poached Egg on Toast Bread and Butter Stewed Prunes Milk
Apple Sauce Oatmeal and Milk Toast and Butter Milk	Lamb Stew with Vegetables Bread and Butter Baked Indian Pudding	Baked Potato Creamed Cabbage Bread and Butter Milk

Midmorning or after-school lunches are quite essential for many children. These lunches should be given as regularly as the other three meals. Milk, Graham crackers, whole wheat or rolled oats, bread with butter and fresh or dried fruit are good foods for lunches.

(Over)

FIG. 171. Both sides of an attractive leaflet ($5\frac{3}{4}'' \times 9''$) prepared by the New England Dairy and Food Council. Such menus and suggestions should be made available for parents by school health workers.

MOTHERS!

MILK: Are you giving each child **at least three cups of milk a day** to drink or in cooked food?

VEGETABLES: Is each child eating at least one vegetable besides potato every day? Do you have a leafy vegetable, such as cabbage, spinach, lettuce, and other greens at least three times a week?

FRUIT: Are you serving fruit in some form at least once a day and twice if possible? Are you remembering that fresh fruit in season is especially desirable, but that dried fruit, carefully prepared, and home canned fruit may also be used at all times of year.

BREAD: Are you giving your children the coarser breads made from entire wheat flour, rolled oats, cornmeal, etc., as well as wheat bread?

CEREALS: Do your children eat cereal regularly for breakfast? Are you careful to remember that home cooked cereals are cheapest and best?

MEAT: } Are you allowing your children to eat meat or fish more than once a day?
FISH: }

EGGS: Are you remembering that with an egg and three cups of milk a day meat or fish every day is not necessary?

FATS: Have you been careful to provide wholesome fats, such as those found in butter, cream, whole milk, crisp bacon and vegetable oils and to avoid doughnuts and other fried foods?

SWEETS: Have your children's appetities been spoiled by eating candy between meals? Have you allowed your children to eat cake, jam, sirup and other sweets at meals when they should have been eating milk, cereals, fruits, and vegetables?

WATER: Do you encourage each child to drink at least four glasses of water a day, one before each meal and at bedtime?

MEALS: Do your children have their meals at **regular hours**? Do they eat slowly and chew their food well?

Have you kept in mind that there is no better lunch for children than milk with bread and butter?

The meal plans on the other side of this sheet furnish adequate amounts of milk, bread, cereals, vegetables, fruits and other foods necessary for the growing school child.

Providing the right food helps children to form the right food habits.

Prepared by the Dietetic Bureau, Boston, Mass.

NEW ENGLAND DAIRY AND FOOD COUNCIL
51 Cornhill, Boston

FIG. 171. (*Continued.*)

CHAPTER XIII

CHILDREN WITH ORTHOPEDIC DEFECTS

Incidence. Philadelphia in 1922, with a total of 230,528 pupils examined, found 10,391 orthopedic cases (or 4+ percent) listed as follows:

Stoop shoulders	9,043
Scoliosis	772
Monoplegias	76
Flatfoot	418
Deformed limb (arthritis)	17
Kyphosis (arthritis)	11
Torticollis	17
Miscellaneous	37

Total number of children with poor nutrition and anemia was 12,871 or 5+ percent.

Many of these defects found in the type of case to be cared for by the school, or requiring other care, are associated with malnutrition. One would expect a greater incidence of orthopedic defects in the undernourished than in the child of normal nutrition, since muscles, like the rest of the body, weaken through the partial process of starvation which characterizes malnutrition. Therefore one expects such statistics as those from Detroit[1] in 1922

	Total in Group	Cases with Orthopedic Defects	Percent
Nutrition group	8,887	53	0.59
First grade	19,533[1]	152	0.78
Fifth	12,067	58	0.50

[1] The first grade pupils were admittedly in poor general condition.

Classification of defects. Drew groups the most common orthopedic abnormalities found in schools as:

1. Antero-posterior faulty postures. Deviations from the properly adjusted body in the place from front to back, known as the antero-posterior.

2. Scoliosis, or lateral curvature of the spine.

3. Abnormalities of the feet. Drew[2] adds "Conditions such as bow-legs, knock-knee, deformities resulting from infantile paralysis, and others may be observed; but *as these are* almost entirely *within the province of the orthopedic surgeon*, they should be referred to him for diagnosis and subsequent treatment."

Classifications of antero-posterior posture. The familiar posture poster of the American Posture League is seen in many class rooms. On it are

[1] City Health, Sept., 1922, p. 5.

[2] Drew, L. C.: Individual Gymnastics, 2nd Ed., Lea and Febiger, Philadelphia

photographs of a boy in (1) *Incorrect Posture*, with the neck and trunk forming a "zig-zag line;" (2) *Correct Posture*, with the neck and trunk in a "straight, vertical line;" (3) *Exaggerated Posture*, which "can be held only for a short time and with great effort." The Children's Bureau, Department of Labor, Washington, D. C. publishes posters of standards developed in the posture clinic at the Massachusetts General Hospital, Boston, Mass. Both classifications were devised for use in examining children.

The Department of Hygiene and Physical Education at Harvard recently has produced another exceedingly valuable poster, which is printed below. Several size copies are available and may be obtained from Harvard University, Department of Hygiene and Physical Education, Cambridge, Mass.

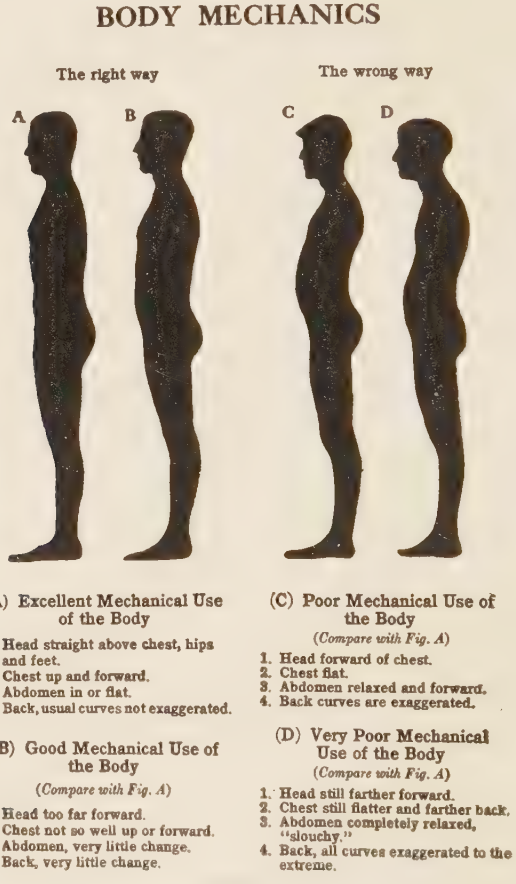

BODY MECHANICS
The right way
The wrong way
A
B
C
D
(A) Excellent Mechanical Use of the Body
1. Head straight above chest, hips and feet.
2. Chest up and forward.
3. Abdomen in or flat.
4. Back, usual curves not exaggerated.
(B) Good Mechanical Use of the Body
(Compare with Fig. A)
1. Head too far forward.
2. Chest not so well up or forward.
3. Abdomen, very little change.
4. Back, very little change.
(C) Poor Mechanical Use of the Body
(Compare with Fig. A)
1. Head forward of chest.
2. Chest flat.
3. Abdomen relaxed and forward.
4. Back curves are exaggerated.
(D) Very Poor Mechanical Use of the Body
(Compare with Fig. A)
1. Head still farther forward.
2. Chest still flatter and farther back.
3. Abdomen completely relaxed, "slouchy."
4. Back, all curves exaggerated to the extreme.
Prepared and issued by the Department of Hygiene and Physical Education, Harvard University, Cambridge, Mass.

FIG. 172. $5\frac{1}{2}'' \times 8\frac{1}{4}''$. Also obtainable as a large poster. The classification is useful, "A" is practically unattained but is a theoretical ideal

As yet, there is no standardization of what range of variations may be permitted in the normal back. Until such a standard is adopted one must work more or less by individual opinion. In general, if the antero-posterior normal curves are at all exaggerated; if there is any lateral variation from a straight line passing from occiput downward, whether accompanied or not by rotation, one must consider treatment necessary. Very recently a few writers have expressed informally the opinion that a variation of not over one half inch laterally from the plumb line dropped from the occiput, might be considered within normal range.

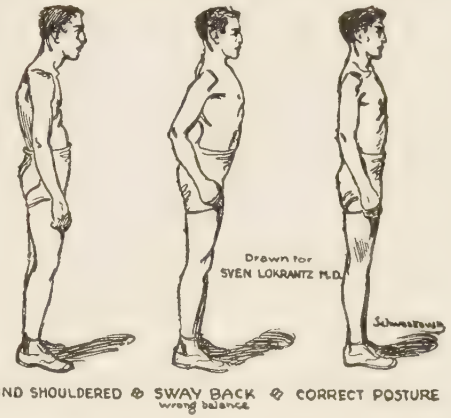


FIG. 173. Lokrantz at Los Angeles uses the above drawings in his "What Every Teacher Should Know about Posture," an eight page 4″ × 6″ leaflet used in the Los Angeles schools.

When a standard is finally reached, it will contain recognition of muscle condition, and many other factors besides mere location of the spinal column as determined by three planes.

Classification of feet. *Classification of feet* is much easier and the following form recognizing a normal and three degrees of abnormality should prove satisfactory in fairly accurate recording of feet and their symptoms.

Name			Age	
Class				
Pronation	0	1	2	3
Long Arch				
Low	0	1	2	3
Tender	0	1	2	3
History of Pain	0	1	2	3
Transverse Arch				
Callous	0	1	2	3
Tenderness	0	1	2	3
History of Pain	0	1	2	3
Tendo Achilles	0	1	2	3

FIG. 174. A Foot Record, hitherto unpublished. A four point scale is used, normal being 0. This corresponds to the common "flat foot" terminology of first, second, and third degree. A record of "eversion" could be added.

FIG. 175. Scale of footprints. From Mother and Child, Vol. IV, No., 10. Oct, 1923. "Individual Gymnastics in the Public Schools" by Augusta H. English.

The picture on the *left* shows a very good foot. The great toe is straight, the smaller toes well spaced and the long arch on the inner side of the foot sufficiently high to make an imprint. The *middle* picture shows an average foot, the great toe being pushed toward the center of the foot, the second toe quite pinched because of this, and the long arch lower and showing on paper. The *third* picture is of a very poor foot. The toes are still more cramped and the long arch is so flattened that it touches the ground when body weight is borne upon the feet.

Another common classification of feet is weak, strained, or flat, depending on whether they are probably normal when not in use, or whether the muscles merely are given out, or whether both ligaments and muscles are losing their effectiveness.

For the purpose of fitting shoes, the American Posture League has graded feet as "inflare, outflare and straight." Straight is when the center line of the heel, when carried forward, shows that at the ball of the foot, the surface lies equally on either side of the line. This classification at least recognizes that it is not possible to have one shoe last fit all feet.

ORGANIZATION OF THE WORK

Two definite classes of children comprise the Orthopedic group:

1. Those whose activities must be entirely under the control of the specialist. Of such children:
   (*a*) Some must not be permitted to take part in any formal or informal school physical exercises.
   (*b*) Others may, after receiving a definite regime from the specialist outlining limitations, participate in the physical exercises in a restricted manner as he directs.

2. Cases of a mild nature which the school may attempt to correct, after the possibility of organic disease is ruled out, and only then. Since the school physician or the school in general has only this group as its province, it is chiefly this last group which will be discussed.

"Medical work in schools should be primarily confined to fairly normal children and conducted from the preventive standpoint by the avoidance of overfatigue and by the correction of bad posture. Actually deformed or diseased children should be classed by themselves and efforts should be made to place them under competent medical care," is the unofficial opinion of a prominent orthopedic surgeon.

Preliminary examination. Cases should be discovered during the regular school health examinations, (1) by the teacher of physical education; (2) the school nurse; or (3) the classroom teacher. Such children require immediate and thorough examination from the point of view of general health as well as the local defect. The opinion of the specialist or the x-ray, may often be needed before a plan may be safely outlined for general physical and corrective exercise.

Following this examination a notice is sent to the home. This notice may be one of the usual forms for notification of parents regarding defects, or if the orthopedic work is exceptionally well organized, a form like the following may be used:

DEPARTMENT OF CORRECTIVE PHYSICAL EDUCATION

LOS ANGELES CITY SCHOOL DISTRICT

Dear Mrs.....

.....has been found to have a physical defect. Will you kindly take

.....to the.....Corrective Physical Education Center at.....

on.....promptly at.....for inspection.

Kindly notify me if you can not keep this appointment.

.....

Principal.

NOTE: This is not a Clinic but a Corrective Center in which the following conditions are corrected; Postural and foot defects, heart conditions, malnutrition and paralytic conditions. Each child will be inspected by Dr. Lokrantz and you will be advised as to the best means of improving your child's physical condition.

FIG. 176. Form for notification of parents. $5\frac{1}{2}'' \times 8\frac{1}{2}''$. Note that a definite appointment is made for pupil.

The parents' consent for treatment is obtained on the following type of form in Los Angeles:

DEPARTMENT OF CORRECTIVE PHYSICAL EDUCATION
LOS ANGELES CITY SCHOOL DISTRICT

Date.....

NAME OF CHILD.....

SCHOOL .....

GRADE OF CHILD.....Age.....

CORRECTABLE CONDITION.....

(Back, feet, heart, nutrition, etc.)

CONSENT OF PARENTS.....(Yes, No)

Signed:

.....
Principal.

FIG. 177. Evidence of parents' consent, signed by principal. It would be equally good to have parent himself sign a similar form. Size 3″ × 5½″.

Control of orthopedic defects in schools is organized in two ways:

1. General instruction to all pupils as to the desirability of having good posture, and how such posture may be attained and maintained.

2. Corrective or individual gymnastics.

General instruction regarding good posture is provided in the school's physical education and health education programs. The purpose is to promote correct posture and good statics among all pupils. Particular attention is paid to the back and the feet.

Any plan should have in mind simultaneous improvement of the whole body musculature, whether this is done through natural gymnastics or the obsolescent formal or Swedish exercises. The former has the advantage of coincident development of body and mind through a series of actions which may be described as natural experiences. Swedish gymnastics have failed because they have no adequate physiologic foundation and because they do not inspire interest and consequent coöperation of the pupil.

General programs will have to emphasize good posture more than previously, if round shoulders, spinal curvatures of the functional type and flat feet are to be avoided. Failure to do this to date has resulted in the poor orthopedic showing of recruits in the recent war and in the startling figures seen in high school groups where an incidence of over fifty percent of beginning or definite foot troubles is often discovered by a careful, trained examiner.

CORRECTIVE OR INDIVIDUAL GYMNASTICS

The individual corrective exercises of a formal type are directed toward the remedy of the particular defect presented by a given pupil. Several months' carefully supervised work by the pupil are necessary for correction of even mild defects. The exercises should be made as interesting as possible.

Records. Accurate methods of measuring progress are mechanical in type. Thus in the posture cases, schematograph, silhouettograph, thread

screen, tracings, photographs, plaster casts—all give very accurate records in trained hands. In some cases, as in joints with limitation of motion, recording in degrees is adequate. Where particular muscle groups are being watched, they may be graded in degrees of excellence, such as Fair, Good, etc., or sometimes by means of the spring balance, the latter being particularly useful in following progress from time to time.

Commonly, records are kept on cards which contain diagrams of the regions examined. The form used in the Posture Clinic at the Massachusetts General Hospital is shown and is used in combination with (1) a general health record, (2) tracings:

POSTURE CLINIC

Name No.

Complaint

Sleep Diet

Physical Exam.

Type
Standing Position
General

Breathing — Costal / Upper Abdom. / Lower Abdom.

Abdominal Retraction — Costal Abdom.
Feet

Circum. — (Neutral / (Insp. / (Exp.

Depth — (Neutral / (Insp. / (Exp.

Breath of Chest Xyphoid

Depth of Abdomen — (Normal / (Retracted

Measurements

Height — Sitting / Standing / Axilla — Weight / Xyphoid

Tracing Xyphoid Angle

FIG. 178. A white card 6″ × 9½″ with back left free for notes.

PHYSICIAN'S CERTIFICATE

BOARD OF EDUCATION
THE CITY OF NEW YORK

OFFICE OF
THE DIRECTOR OF PHYSICAL TRAINING AND HYGIENE
157 East 67th Street

....., 192...

Director of Physical Training,
Department of Education, New York City.

Dear Sir:

Will you kindly adjust the physical training exercise to be done by .....
..... a student in .....
High School in accordance with schedule below on account of (diagnosis).....
.....
.....

I. MILD EXERCISES.
Slight effect on pulse rate, blood pressure.

1. Tactics—(Marching, Facing, etc.)..... Yes No
2. Postural exercises to correct:
   - Dropping Head .... Yes No
   - Flat Chest ..... Yes No
   - Round Shoulders... Yes No
   - Uneven " .... Yes No
   - Flat Feet ..... Yes No

Note.—These exercises tend to increase neuro-muscular control and co-ordination.

II. GENERAL EXERCISES.
Moderate effect on pulse rate, blood pressure, intra-abdominal tension.

Exercises involving large muscle groups of the:
- Arms. .... Yes No
- Legs..... Yes No
- Trunk..... Yes No

Note.—These exercises tend to relieve splanchnic stasis and improve lowered vaso and enteric tone.

III. HEAVY EXERCISES.
Marked effect on pulse rate, blood pressure, intra-abdominal tension.

1. Running..... Yes No
2. Folk Dancing..... Yes No
3. Vigorous Games..... Yes No
4. Athletics ..... Yes No
5. Exercises on heavy apparatus ..... Yes No

Note.—These exercises tend to increase the development of the heart and lungs, and of the general musculature. They may be contra-indicated, especially in organic heart conditions.

Other specific recommendations for exercises.....
.....
Recommendations in regard to stair climbing .....
Other recommendations and remarks .....
.....
.....
.....

(Signed).....M. D.
Address.....
.....
(Phone No.) .....

FIG. 179. New York City form giving prescription for individual adjustments of exercise. $8\frac{1}{2}'' \times 11''$.

Treatment in corrective gymnastic programs. This is largely directed toward five groups:

1. Poor posture;
2. Weak or fallen arches of feet;
3. Postural curvature or slight scoliosis of the spine;
4. Structural scoliosis and infantile paralysis;
5. Cardiac weaknesses.

In the last two groups absolute medical direction must be demanded. Frequently physicians will not exercise such groups nor will they permit others to do so.

In general, the handling of these cases is too conservative or too ambitious. Such plans as furnishing plaster jackets and adjustment of apparatus are justifiable only under strict supervision of an orthopedic specialist and only then when local clinical facilities can not or will not care for the cases satisfactorily.

On the other hand, there is no excuse for providing no corrective program at all, as is the custom in many school systems.

General plan of organization of corrective gymnastics. Selected cases are treated either individually or in groups. Since the program is planned for a group of defectives, individual attention is desirable and without doubt individual lessons for the individual pupil permit more careful supervision and should result in the greatest improvement of the child's defect. At least, an individual program should be mapped out for each pupil who needs corrective gymnastics.

Department of Corrective Physical Education
LOS ANGELES HIGH SCHOOLS
SPECIAL FOOT WORK

Name of School _____ Name of Teacher _____

Name _____ Date _____ Group _____

Inspection: _____

Pronation: _____ Pain _____

Longitudinal Arches _____

Transverse Arches _____

Abduction _____ Whole Foot _____ Great Toe _____

Remarks: _____

Shoes: _____ Toes _____ Heels _____

Correction Recommended: _____

Record of Improvement: _____

Schedule of Exercises: _____

Number of Terms of Work: _____ Months: _____ Weeks: _____

FIG. 180. Los Angeles Record for Special Foot Work. Yellow card 5″ × 8″. Few school systems have facilities for special foot groups.

The group method will be used in most school systems because of the lessened expense. Small groups of about ten can be handled fairly satisfactorily by one person, provided the same sort of defect exists in all. Thus a "weak foot" section may do well under a system of regular exercise and good results may be obtained; nor need serious omissions be made in the program, because of the number in the special group.

Successful treatment depends on (1) arousing interest in the pupils; (2) determination of the pupils for getting results; (3) accuracy in performing the given exercises.

Special facilities required for corrective gymnastics. With the exception of apparatus for recording, no special facilities are required for corrective gymnastics if an ordinarily equipped gymnasium is available. The apparatus needed includes (1) plinths and bars, (2) flying rings for cases of one low shoulder; (3) mats for some of the floor work.

Posters and exhibits are helpful. Detroit has a series of five posters showing all degrees of feet from good to very bad. The Joint Committee on Health Problems in Education and the American Posture League have good charts of feet and posture. A few samples of suitable shoes are most helpful and are gladly furnished by many manufacturers. Casts of normal and defective feet are good exhibits. Emphasis should be placed on ideal statics.

Teachers of corrective gymnastics. The work should be under the direction of a thoroughly trained expert in corrective or individual gymnastics. He would be most satisfactory if he were also a physician who had a thorough training in Orthopedics. Such persons are scarce. If the director has not a medical training, he must lean heavily upon some medical adviser unless he desires to be responsible for certain serious errors of commission.

Regardless of what may be done in other fields, successful or even harmless corrective work can not be done without strict medical supervision and cooperation. Too much damage is possible.

The teachers must have careful training in functional anatomy; have much more careful training and experience than the average teacher of physical education; must be willing to coöperate with physician and director and able to subordinate individual opinions to those of wiser minds. Usually such teachers have considerable freedom of action because supervision is slight and high-grade credentials have been demanded. Five or six classes of half an hour each should be a good day's work for a teacher of corrective gymnastics. Careful record keeping is part of her work. This teacher may be part- or full-time depending on the needs of the school system. If part-time, the rest of the day may be devoted to general physical education work.

Remaining groups may be handled by that teacher if she is certified to carry out corrective procedures, under the supervision of the Corrective Department.

To all speech defectives and mental defectives advice and instruction should be given on request as to general correction, the Corrective Department consulting with the Directors of Speech Correction and Psychology.

NEEDS

One Corrective Room and one special teacher in each grade school.

EQUIPMENT

a. 2 Low Plinths.
b. 1 High Plinth.
c. 1 Peg Post.
d. 1 Horizontal Bar.
e. 2 Stall Bars.
f. 3 Stools.
g. 2 Body Mats.
h. 1 6-ft. x 4-ft. mirror.
i. 1 Spirometer.
j. 1 Stethoscope.
k. 1 Weighing Scales.

GENERAL REMARKS

Posture week should be organized for all schools once a term.

FIG. 181.[1] The Los Angeles Corrective Program. Printed in black ink on brown paper in four pages $5\frac{3}{4}'' \times 8\frac{1}{2}''$. The back cover, the upper part of which is shown above, also contains information about the types of nutrition classes.

CORRECTIVE PROGRAM

Aim

BETTER HEALTH
CORRECTION OF DEFECTS

Senior High Schools

TYPES OF CLASSES

1. Special Classes to be formed by those selected by School Physician, those recommended by Physical Training Teacher, those bringing request from Home Physician or parent, or those selected by Supervisor.

SCOPE OF WORK

If there is no special teacher for Corrective Work in a High School, one single weak squad should be formed and group exercises and rest should be given the pupils in this squad for two periods a week. Into this division may be placed all corrective cases.

If there is a special teacher for Corrective Work and a room with equipment has been established, the following group classes should be formed:

CLASS I—POSTURE

i. e. Forward head, round-shoulders, spinal curvatures, hollow backs, flat chest, etc.
a. Posture Class consisting of postural back conditions.
Give free-floor corrective exercises and instructions.
b. Special Class consisting of small number. (Structural conditions.)
Give individual corrective exercises, home exercises, and if necessary, refer cases to orthopedic clinics.
c. Miscellaneous.

CLASS II—FEET

a. Structural.
Give exercises at school, card for home exercises, strapping, or if necessary, refer to orthopedic physician.
b. Postural.
Give corrective exercises at school. Card with home exercises and advice as to shoes.

CLASS III—HEART

a. Functional.
Examination once a term by School Physician.
Give group heart exercises.
b. Organic I.
Examination once a term by school physician.
Give second degree heart exercises.
c. Organic II.
Examination once a month by school physician.
Give rest or special lying down heart exercises, if so recommended and carefully supervised.

CLASS IV—OVERWEIGHT

a. If heart is in good condition, give graded hill walking, vigorous exercises, instruction as to diet, home exercises.

FIG. 181(*A*). Front cover.

[1] Figure 181 is a *series* of pages taken from the Los Angeles Corrective Program.

CLASS V—NERVES

Conditions such as St. Vitus Dance, Speech Defects, Infantile Paralysis, Spastic Paralysis, etc.

Give rest. Special exercises at school may be given in group if necessary. Give instructions as to home exercises. Rest most important. Teach parent to massage weakened muscle group in paralysis.

CLASS VI—MENSTRUAL (GIRLS)

All must rest during menstrual period. Give special exercises if indicated.

CLASS VII—MISCELLANEOUS

As goiter, anema, general debility.
Give rest and special exercises.

REMARKS

Individual Corrective Work may be done during period when there is smaller number of students to handle.

Give list of all heart cases to principals. See that units of work are not too heavy. Increase the time allowed for such students to pass between classes.

Uniform—Recommend bathing suit in case of individual corrective work for girls.

Corrective cases may be excused from dressing in uniform on recommendation of Physical Director or Physician.

PROCEDURES FOR CORRECTION

a. Free-floor Corrective Gymnastics.
b. Corrective Gymnastics.
c. Rest.
d. Diet.
e. Home Exercises.
f. Home Lessons.
g. Clothing.
h. Shoulder strapping.
i. Massage.
j. Plaster of Paris Jackets.
k. Instruct parents how to carry out home exercises and massage weakened muscles.

Junior High Schools

(Where there are two instructors for each Department.)

Where possible follow program as outlined for Senior High Schools.

1. Squad Organization. (Corrective Squad)
   Select all types listed on previous pages.
   a. Time.
      One day per week when other squads go to playground.
   b. Procedure.
      1. Teacher may lead group and give verbal correction.
         In this way she is not so free to recommend special exercises to individual needs or give individual aid in performance of the exercise.
      2. Leaders may be appointed to watch others, but should also do exercises.
      3. Home exercises should always be assigned, first having child perform the movement.
      4. Correct each individual for posture and faulty foot positions before mirror.

REMARKS

Posture week should be given once a term in each school.
Urge parents to come to class so as to teach them how to assist in correction.

Needs

Senior and Junior High Schools

There should be one Corrective Teacher for boys and one for girls in each school.
There should be two Corrective Rooms in each school, or at least one.
As to instructions in methods of correction, see Supervisor.

EQUIPMENT

*a. 4 Low Plinths.
*b. 2 High Plinths.
*c. 4 Peg Posts.
*d. 2 Horizontal Bars.
e. 9 Stall Bars.
*f. 9 Stools.
*g. 1 Massage Plinth.
h. 20 Body Mats.
i. 1 6-ft. x 4-ft. mirror.
j. 1 Spirometer.
*k. 1 Stethoscope.
*l. 1 Weighing Scale.
m. 1 Swedish Boom.
n. 1 Horizontal Ladder.
o. 6 4-ft. Webbing Straps.
p. 10 18-ft. Square hair pillows.
q. 1 Hospital Screen (3 wings)

(Those articles marked with * are necessary.)

FIG. 181(*B*). Left page inside.

Elementary Schools

Establishment of Corrective Centers to which children can be sent from within radius of three miles.

Each Center to be in charge of full time special teacher with at least one assistant.

Supervisor to visit each Center at least once a week for inspection. Each child to be thoroughly gone over by him at this time and recommendations made.

At each Center an Orthopedic consultant should be appointed to see children with bad deformities who need special hospital care.

The following groups are to be handled at these Centers:

1. Posture.
2. Feet.
3. Heart.
4. Overweight.
5. Nerves.
6. Nutrition.
7. Miscellaneous.

CLASS I—POSTURE

i. e., round shoulders, spinal curvatures, hollow backs, etc.

Small classes of from five to ten should be formed.

a. Posture class consisting of postural back conditions.
   Group corrective exercises given.
   Self correction home exercises given.
   Faulty habits checked.
b. Special class consisting of structural back conditions.
   Not more than one to three in group.
   Individual exercises given.
   Home exercises given.
   Orthopedic plaster jackets recommended if necessary.

CLASS II—FEET

a. Structural Class.
   Exercises given at Center.
   Card given for home exercises.
   Strapping, and plates made if necessary.
b. Postural Class.
   Corrective exercises at Center.
   Card for home exercises.

CLASS III—HEART

a. Functional.
   Examination once a term by Dr. Lokrantz.
   Give group heart exercises No. 2, No. 3, No. 4.
b. Organic No. 1.
   Examination once or twice a term by Dr. Lokrantz.
   Give heart schedules No. 1 and No. 2.
c. Organic No. 2.
   Examination twice a term by Dr. Lokrantz.
   Give rest.
   Give special lying down heart exercises.
   Activities of child closely supervised.

CLASS IV—OVERWEIGHT

If heart is in good condition give vigorous exercises and instructions as to diet.

CLASS V—NERVES

Conditions such as St. Vitus Dance, Speech Defects, Infantile Paralysis, Spastic Paralysis, Neuritis, etc.

Special attention should be given by Supervisor and Teacher.

Consultants to help in correction.

Teach parent how to massage muscles if needed.

REMARKS

Children should go to Center once a week for at least three months, or every day for at least six weeks.

Children may be selected by Physician, Nurse, Principal, Special Teacher or Supervisor.

In every elementary school where there is a special teacher all postural defects should be handled as a separate group by that teacher.

FIG. 181(C). Right page inside.

Representative Methods

(1) *Los Angeles*,[1] under the direction of a physician, Dr. Sven Lokrantz, has evolved an ambitious and comprehensive program.

"The Corrective Physical Education Section of the Department of Health and Corrective Physical Education, Los Angeles City Schools, was established in 1918. After seven years of growth it is now able, with all its workers, to reach and help approximately 35,000 children. All of the senior and junior high schools have corrective rooms and have teachers in charge. Since January, 1924, there have been nine corrective physical education centers in operation to take care of the elementary school children. Here children are sent from various schools with bad posture, flat feet, heart conditions, nutritional disturbances, and paralysis. Once a month an orthopedic specialist examines the most extreme cases of indigent paralytic children. The medical supervision of the examination is taken care of by a specially qualified physician. Most excellent work has been done during the past four years.

"Procedures for correction are: free floor corrective group gymnastics, individual corrective gymnastics, orthopedic gymnastics, non-surgical orthopedics, rest, diet, sun baths, clothing, strapping, and home exercises.

"There are about 20,000 children with different abnormal postural conditions, such as round shoulders, spinal curvatures, and narrow chests, who, if not helped, will fail to develop into strong men and women. Hygiene, rest, corrective exercises, jackets, and general corrective procedures give astounding results in a short time.

"There are two or three thousand children with heart defects who have been aided. Children with heart defects are excused from regular physical training and assigned to corrective physical training classes. By giving such children an opportunity to rest and by giving them graded exercises, thus enlarging their chest capacity, we can give them longer lives.

"In most of the elementary schools we find a great number of heart cases which demand investigation, examination, and re-examination, and the problem of handling these cases is a very important one. The functional heart conditions and minor lesions are handled in groups of from ten to twenty-five, and special heart exercises are given. Other more serious lesions, like aortic regurgitation, mitral stenosis, and double lesions, come under the care of private physicians.

"The muscle of the heart is under the same law of physiology as any other muscle of the body, and, if it is not given proper care, it may be strained, overworked, or wasted. It is quite interesting to note that heart conditions are more prevalent in some schools than in others. The elimination of worry and excitement in the cases of children suffering from heart affection is important. If a child with a heart defect is sensitive and the teacher is in any way indiscreet in her remarks during his daily recitations, that child is seriously hurt by constant excitement and worry. Relief from worry is an essential in the environment of such children.

[1] Annual Report of the Department of Health and Corrective Physical Education, July, 1924–July, 1925.

"There are many thousands of children with pronated feet in the Los Angeles City Schools. Corrective exercises, shoe correction, and strapping have afforded help and, in some cases, cure.

"Many children with paralysis have been helped.

"The corrective work among the kindergarten children is a problem in itself. It is handled by a physician who is interested in the younger children, and has a special knowledge of their problems.

"Every year a course in Corrective Physical Education is given, which not only corrective teachers, but physical training teachers, physicians, and nurses have taken. In the class of 1918, when the corrective work was inaugurated in the Los Angeles City Schools, a class of 135 students registered for this course.

"Corrective work in the Los Angeles City Schools is being copied by many cities in America. Even the Republic of Mexico has voiced its interest in introducing it in its schools."

There are seven corrective centers with complete equipment, the most complete of these occupying a separate building. Each has one corrective gymnasium, one plaster room, one tuberculosis room; one speech correction room; one nutrition room; one sun-bath enclosure with grass ground for the pre-tubercular and the undernourished.

Plan of the Program

Selection of candidates for the corrective program. Candidates are selected by Physician, Nurse, Principal, Special teacher or Supervisor and examination by a physician precedes plan for treatment. Periodic examinations, are given, the frequency depending on the type of case.

An individual prescription is used (Fig. 183, page 426).

FORM 739-2M-4-14-23

DEPARTMENT OF CORRECTIVE PHYSICAL EDUCATION

LOS ANGELES SCHOOLS

(Measurements and Inspection)

Name _____ School _____

MEASUREMENTS	DATE	INSPECTION
Height		Back: Type Posture Grade
Weight		
Girth Chest ex.		Kyphosis
Girth Chest con.		
		Lordosis
Lung Capacity		
		Scoliosis
Race		
Nationality		Shoulders R. L.
Cephalic Index		Muscle Tonc. Fair, Good, Excellent
		Flexibility
		Heart
		Feet

(OVER)

Recommendation:

Schedules

Improvement

Teacher

FIG. 182. Los Angeles Record 5″ × 8″ blue card. The back has ample room for special notes. Such provision is important but often neglected.

PUPIL'S INSTRUCTION CARD

Dept. of Corrective Physical Education,
Dr. Sven Lokranz, Supervisor.
Dept. for Correction of Speech Defects
Alice C. Chapin, Supervisor.

* * * *

Name _____

School _____

1. Rest _____

2. Food _____

3. Body Exercises _____

_____

_____

4. Special Home Instruction _____

_____

_____

5. Salt Rub _____

6. Hours of Sleep _____

7. Miscellaneous _____

8. _____

9. _____

10. Speech Correction Exercises _____

FIG. 183. Los Angeles Pupil's instruction card 5" × 8" manila paper. An *individual* prescription.

Forms used in Los Angeles, Cal. One of the most valuable forms is "What Every Teacher Should Know about Posture." The teacher is furnished with this pamphlet which thoroughly explains the damage from poor posture; the types of poor posture, often with causes; the prevention and treatment of poor posture among school children with emphasis on clean, proper clothing; avoidance of overstrain at school and at home; careful supervision constantly of posture whether sitting or standing; carrying books under alternate arms; proper standard of seat adjustment at the school; the necessity of attention to nutrition is such cases; the need of corrective exercise and, at times, of special appliances, such as plaster or leather jackets, etc. A cut (printed earlier in this chapter (page 411) illustrates round shoulder, sway back and poor balance, and correct posture.

Other forms used include "Suggestions for the Care and Distribution of Milk in the Schools;" Outline of the Corrective Program (see page 419) including aim, type of cases, work for senior high schools, junior high schools, and elementary schools (printed on previous page), equipment required, Nutrition program; a height-weight-age table of the Baldwin-Wood type; a teacher's report of corrective physical education; self analysis form for

the pupil with questions on diet and health habits, and directions as to *How to Reach Your Ideal Weight*, on the opposite side (see page 398); a class report form noting number of boys and of girls in the class, rest periods, milk taken, other food taken, physical activities, instruction, charts, permission from

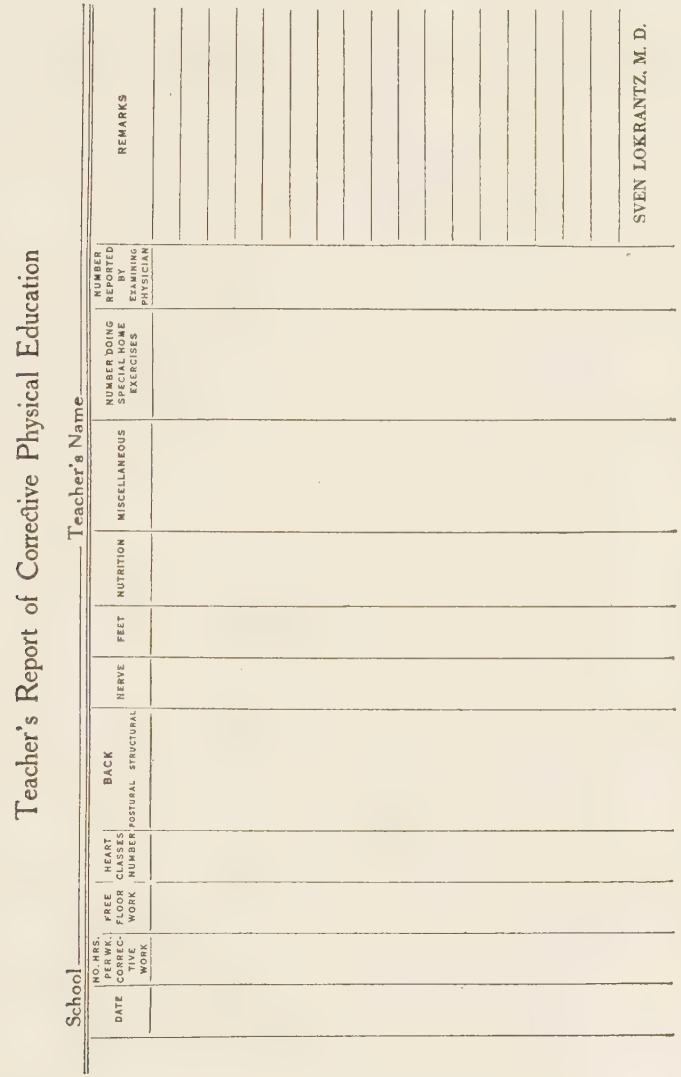


Fig. 184. Los Angeles Teachers Report of Corrective Physical Education. Card 5″ × 8″.

parents; directions for the use of height-weight record (see page 84); a weight-gain chart; height-weight record for room with table on the back showing weights for 7 percent and 10 percent underweight for height; home nutrition report (see page 400); request form for a nutrition class; a form for

notifying parent of a physical defect and making an appointment with the parent at the Corrective Center (see page 413); several small appointment and other forms largely concerned with checking attendance; a series of six differently colored cards ($4\frac{1}{4}'' \times 5''$) with exercises for home use, as follows:

LOS ANGELES CITY SCHOOL DISTRICT

DEPARTMENT OF CORRECTIVE PHYSICAL EDUCATION

FOOT EXERCISES FOR HOME USE

1. Sitting, leg of active foot over knee; foot-rolling downward, inward, upward. Do 15 to 30 times and change feet.
2. Sitting, picking up marbles with toes, and take from foot when as high as opposite knee. Do 15 times with each foot. (Careful demonstration.)
3. Standing, knee rotation outward. (Arch raising on inner border.) Do 5 times.
4. Long sit, toes together, heels apart, ankle flexion and extension. (Keep chest up.)
5. Sitting, foot drawing. Place feet about 30 inches apart, foot flat on floor throughout; leg extended; make ½ circle on floor toward each other and back to chair.
6. Sitting, pupil massages own feet.

SVEN R. LOKRANTZ, M. D., Supervisor.

FIG. 185. Red card.. Foot exercises. The reader may prefer to advise other foot exercises.

LOS ANGELES CITY SCHOOL DISTRICT
DEPARTMENT OF CORRECTIVE PHYSICAL EDUCATION

Exercises for Relaxed Posture for Home Use

1. Lying, arm raising with deep breathing and slow sinking.
2. Lying, arm extension upward and sideward, holding the bend position each time. Do six times in each direction.
3. Lying, double knee bending to chest, extension and slow sinking. (Take a deep breath at the beginning of each movement and hold.) Do four or five times, guarding against hollowing back.
4. Stride sitting, hands at neck, trunk bending forward and raising against imaginary pressure between shoulders. Do five times.
5. Standing with feet about six inches from wall, back flat against wall and head touching wall. Arms in reach position at shoulder level, slow parting. (Pupil should push out from wall with weight on balls of feet with body held in the erect position taken when trunk was against the wall.) Do five times.
6. (Put up a bar in some doorway.) Hang from bar daily with hands as far apart as width of shoulder or further, head pushed back between arms. Care should be taken not to hollow back.
7. Standing as in No. 5, deep breathing, arm raising forward, upward. Do four times.

Sven R. Lokrantz, M. D., Supervisor.

FIG. 186. Gray-green card.

LOS ANGELES CITY SCHOOL DISTRICT

DEPARTMENT OF CORRECTIVE PHYSICAL EDUCATION

LATERAL CURVATURE EXERCISES FOR HOME USE

1. Standing by open window, deep breathing, arm raising.
2. Arm stretching upward and bending arms as though pulling straps down from ceiling. (Elbows held well back.)
3. Lying face down, trunk raising and holding 4 to 6 counts.
4. Hanging from a bar, hands well apart.
5. Forward, downward bending of the trunk to touch hands to floor, slow raising of trunk, straightening from neck when lifting body.
6. Prone reach, stride sitting, arm parting.
7. Stride sitting, hands at neck, trunk bending to side, and repeat 4 to 6 times.
8. Lying, single or double leg raising (according to strength) and slow sinking.
9. Breathing, raising arms forward, upward, and sideward, downward.
10. Rest on back.

SVEN R. LOKRANTZ, M. D., Supervisor.

FIG. 187. Yellow card.

LOS ANGELES CITY SCHOOL DISTRICT

DEPARTMENT OF CORRECTIVE PHYSICAL EDUCATION

HEART EXERCISES FOR HOME USE

1. Rest on back.
2. Lying arm raising forward, upward, with deep breathing and slow, sinking, exhaling, breath.
3. Lying, arms bend to shoulders, and slow extention downward.
4. Lying double foot rolling, (extend feet, twist to side, flex, twist to other side, and extend.) Repeat 5 or 6 times one way then other way.
5. Lying knees bend so feet are flat on plinth, spread knees then close slowly. Knee separation.
6. Lying deep breathing arm raising slowly forward upward and slow sinking.

SVEN R. LOKRANTZ, M. D., Supervisor.

FIG. 188. Light brown card. Prescribing heart exercises presupposes thorough understanding of the heart condition which exists in the patient.

LOS ANGELES CITY SCHOOL DISTRICT

DEPARTMENT OF CORRECTIVE PHYSICAL EDUCATION

HOME EXERCISES FOR RESISTIVE TYPE OF ROUND SHOULDERS

1. Standing, feet about 6 inches away from wall, arm raising forward with deep breath. (Try to reach up and touch wall.)
2. Support stride standing, (one hand on each side of a doorway, hands shoulder high), sway forward on to balls of feet, bending arms at elbows.
3. Stride standing, grasping wand (or piece of broom handle), hands well apart, trunk bending forward with wand raising forward, upward. (Watch position of head.)
4. Stretch prone sitting, arm flexion as though pulling down straps from ceiling.
5. Hanging from bar.
6. Fall lying, hands at neck (or hips), trunk raising and holding 6 to 10 counts. Repeat 6 times.
7. Lying with pillow under point of curve, arms raising (forward, upward), six times.
9. Sitting, back against wall, arm parting from reach position. 8 to 12 times.
10. Breathing.

Note.—Be sure pupil has a good image in mind of how to do correctly. Adding resistance to No. 3, No. 4, and No. 9, when learned, will increase the difficulty of the exercises. Repeating each slowly and with longer periods of contraction will increase the difficulty. Practise before a mirror if possible.

SVEN R. LOKRANTZ, M. D., Supervisor.

FIG. 189. White card.

LOS ANGELES CITY SCHOOL DISTRICT
DEPARTMENT OF CORRECTIVE PHYSICAL EDUCATION

Exercises for Hollow Back for Home Use

1. Sitting on stool with back flat against wall, deep breathing and arm raising forward, upward, three times. Care should be taken to keep back flat against wall. (Arm extension exercises are good from this same position.)
2. Prone sitting, arm extending upward and slow bending. (Body is bent slightly forward from hip, chest high. Care should be taken that head is held high throughout.)
3. One-half standing. (One foot on low stool so lower back is flattened.) Hands on the chest and far apart, elbows at shoulder level. Stretch arms slowly to sides and return.
4. Lying, knees bent so that back is flat. Single leg extension upward and slow sinking. Take deep breath at begining of movement and exhale slowly at close. Do four or five times with each leg.
5. Sitting on stool, body relaxes forward to touch hands to floor. Slow raising of body, keeping back flat.
6. Walking, feet straight ahead, bending and clasping knee to chest with each step. Do slowly.
7. Stride siting on stool, arms raised forward to shoulder level, back flatten against wall, deep breathing with arm parting to sides, keeping them shoulder high and turning palms upward, then lower arms. Do five or six times.

Sven R. Lokrantz, M. D., Supervisor.

FIG. 190. Blue card.

Each card contains from six to ten different exercises.

That results are forthcoming is shown by a reduction of the percentage of bad posture in 1918 of 41 percent to 24 percent in 1921.

Dr. Lokrantz believes that "Formal gymnastics is absolutely necessary for our school children in order to give uniform development of muscles and health in general" (Report of Dec. 3, 1922, page 2). He further says "Corrective Physical Education is not a part of Orthopedics. Orthopedics is one important part of the Corrective Physical Education program. This is a point which has always been strongly emphasized by Peter Henry Ling, the father of Formal Gymnastics and Corrective Training."

One gathers the impression that the program is probably the most ambitious and one of the most carefully planned in the country. Such a comprehensive plan is rarely possible in school systems, nor is so strong emphasis on formal gymnastics in keeping with the best beliefs of the present day. Natural gymnastics are slowly but surely replacing the Swedish formal work, except in strictly corrective work or medical gymnastics.

2. *Detroit.* The work is largely preventive Individual Gymnastics and is preceded by a thorough physical examination, the findings of which are kept on a special record form. Examinations are made by special teachers

DETROIT PUBLIC SCHOOLS
DEPARTMENT OF HEALTH EDUCATION
INDIVIDUAL GYMNASTICS

School — Transferred

Address

Name (Last) (First)

Parent's or Guardian's Name — Address

Date of Birth (M D Y) — 1st EXAMINATION — 2nd EXAMINATION

Color — Nationality

	1st EXAMINATION	2nd EXAMINATION
	Date / Grade	Date / Grade
	Age / Section	Age / Section
Height	inches	inches
Weight	Aver. Wt.	Aver. Wt.
Lung Capacity	cu. in.	cu. in.
Grip	R L	R L
Chest—9" rib	C E	C E
Heart		
Spine - lateral		
Shoulders		
Displacement		
Deviation		
Rotation		
Posture		
Head		
Shoulders		
Chest		
Back		
Abdomen		
Feet	R L	R L
Pronation		
Long Arch		
Trans. "		
Eversion		
Shoes		
Toe		
Shank		
Inner border		
Heel		
	Total Points	Total Points
Foot print		
Home card		
Remarks		

POSTURE TEST RATING

Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar	Apr.	May	June

FIG. 191. Detroit Record Form.

as early as possible in the Fall and checked in the Spring. The children are classified:

1. Those who require private or clinical orthopedic treatment, such as structural curves of the spine, acute foot conditions, or those who have had a recent attack of infantile paralysis.

2. Those who may be given special work, as those who have faulty posture or who are unable to maintain good posture; those with a slight postural curvature of the spine; those who have symptoms of weak feet, such as eversion or pronation, or feet with weak or fallen arches; those who have some physical weakness which makes them unable to enter into the activities of the general gymnasium.

Work is done in classes of not more than twenty pupils. Periods last 30 minutes. The class is divided into posture, back, foot, and health instruction groups.

Some cases of the Group 1 are handled by close cooperation with the physician, and are given exercises. In the case of cardiacs, exercises to strengthen the heart are given.

The Percentage of Orthopedic defects discovered by the teachers in regular examination was .82 percent in 1922–1923 school year (Elliott's Summary of Results, T.2). The teacher was given the following standards referring to bones, joints, and muscles:

"0—Normal

1—Slight impairments which will be evidenced by stooped shoulders or a limp in walking.

2X—Any impairment of a slight or moderate nature which could be improved by treatment or operation. This would include such things as slight or serious postural defects, spinal curvatures, high shoulders, hunch backs, limping and post paralysis impairments.

3X—In this class would come the worst cases, children who are seriously handicapped in locomotion or in posture.

X—Cases are re-examined by physicians."

3. *The Horace Mann School.* Here every pupil is given a complete physical examination early in the Fall by the school physician or his associate. All clothing is removed, and an examination garment provided which gives easy access to the back. Orthopedic variations from the normal are carefully noted and re-examinations made if needed. The parent is present and the defect demonstrated. If the case is a mild one, a few exercises are given, possibly certain changes in clothing recommended (as in the case of defective feet), and progress is noted at later examinations. Properly fitting lasts are urged, and lifts on the inner side of the shoe heel are sometimes recommended in cases of flat feet. A careful descriptive record is kept. More serious cases are referred to the Supervisor of Individual Gymnastics for consultation and special examination. Frequently these children are enrolled in special classes. Where the case includes nutritional troubles, rest and proper diet are strongly emphasized and a program of exercises, rest in corrective position, rest periods, and diet is mapped out. The common

fault in dealing with such cases in corrective programs, generally, is over-exercise and every effort is made to avoid this at the Horace Mann School.

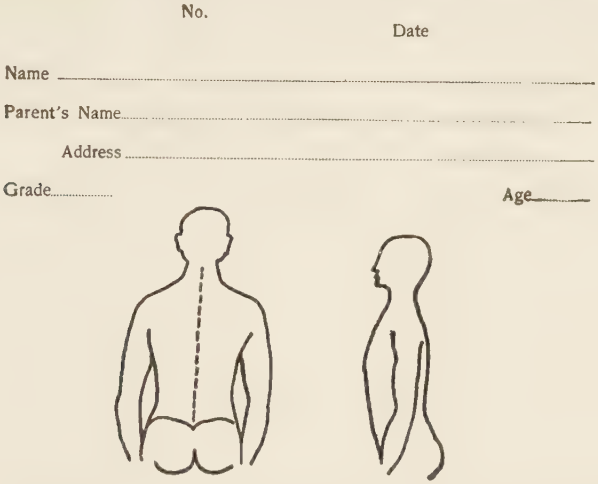


FIG. 192. Horace Mann School Record. $5\frac{1}{4}'' \times 7\frac{1}{2}''$. The simplest possible form. A blank sheet of paper and a suitable rubber stamp can be used to approximate this card.

Gymnastics are given all pupils from two to five periods a week. Important emphasis is placed on exercises tending to correct defects discovered in the majority of the group. Preventive work is done through the teaching of good statics in standing, moving, or sitting.

Further assistance is given through the after-school clubs where emphasis along similar preventive lines is constant.

No attempt is made in the school to treat any except mild cases. Others are brought to the attention of the family physician through the medium of the parent. The physician can request the school to adopt any special routine desired and feels free to do so.

Close coördination between the school physician and the department of physical education in the matter of records and recommendations, has improved possibilities of success. The belief exists that it is unwise for any school to attempt to perform the functions of an orthopedic clinic other than for the purpose of diagnosis of ambulatory cases and for offering the advantage of selected corrective exercises in mild, carefully chosen cases. To do more than this in a demonstration school in a teacher-training institution, is to set an example which it is neither desirable, wise, profitable, or possible for a public school or private school to follow, except in unusual circumstances.

4. *The practice* in most schools is to include in the physical education program a certain number of exercises for strengthening the muscles of the back, chest, abdomen and feet. This is true in both Swedish and natural types of gymnastics. In some cases a few special classes are arranged for the cases with the worst defects of back and feet. Frequently no corrective work is done at all. Many supervisors are so enthusiastic over the idea of

symmetric development of the whole body that they fail to recognize the special needs of their pupils, even if symmetry is to be the object; and the course becomes, merely, a mechanical method of going through evolutions, sometimes with no very definite objective in mind.. This is especially true in the groups who are given formal exercises only. Defectives are often merely excused from exercises and no attempt is made to give them the special attention which they above all the others need so badly. The supervisor is often discouraged by (1) large classes with pupils from several grades; (2) lack of funds, equipment, room, and personnel. As a result he provides a purely mechanical program. Lack of team work between the health service and the physical education departments represents another cause of unsuccessful programs.

Program for Corrective Gymnastics

The rudiments of a very excellent program lie in the following:

1. Careful attention to body mechanics in the program of Physical Education. Emphasis to be placed on correct walking and standing, position of back and feet, and sitting position of back; development of the muscles involved in these acts.

2. Discovery of orthopedic defects during the health examinations or through the watchfulness of the teacher who is trained in the standards of good statics and who refers cases to the physician or nurse if it seems necessary.

3. Definite corrective work through individual gymnastics where cases are mild; sometimes in coöperation with and under the direction of the family physician or specialists in severe cases.

4. Home exercises, such as rolling the feet outward (with feet parallel), keeping great toe and heel on the floor—for *weak feet:* picking up marbles with the toes—for *anterior arch troubles:* and standing back against a wall with heel, buttocks, shoulders, and back of head touching the wall, raising and retracting abdomen at the same time the pupil inhales, and holding the posture thus secured; hanging by the shoulder for low shoulders; resting with a folded sheet between the shoulders; and a few other simple, easily performed exercises, easily taught—for *unsatisfactory posture.*

5. Results observed at least once a year and carefully recorded.

6. The use of plaster of Paris jackets, prescribing of braces, or the handling of bad cases is rarely justifiable and such procedures should be delegated to clinics or practicing physicians.

7. Definite methods of an educational nature, tending to emphasize the necessity of correct statics.

8. Such attention to individual cases as time and type of case permits. A group of sound, well-chosen exercises for home use were issued by the National Board, Y. W. C. A. Associations. They are printed on cards $3\frac{1}{2}$ inches by $5\frac{1}{2}$ inches.[1] They are shown here:

[1] These cards are copyrighted by the National Board of the Young Women's Christian Association and are reprinted with their permission and permission of the publishers, The Woman's Press, 600 Lexington Avenue, New York, N. Y.

POSTURE

How to Walk Correctly

Walking is standing in motion. In walking the toes should point straight ahead and the arms should swing evenly at the sides. Weight should fall through the long arches, not back on the heels. Series IV-B.

FIG. 193. A common instruction well illustrated.

POSTURE

How to Carry Books or a Load

Change your load frequently from one arm to the other, or if possible divide it, thus avoiding a crooked back and a low shoulder.

FIG. 194. A point usually forgotten. The latest cards use a photo instead of a drawing. Series IV-D.

POSTURE

How to Climb Stairs

Incorrect Correct

Instead of climbing stairs with back bent and chest contracted (causing back fatigue and breathlessness) keep the body erect, doing the work with the legs and feet and thus allowing room for breathing and good heart action.

FIG. 195. Rarely kept in mind by most examiners.

POSTURE

How to Stand Correctly

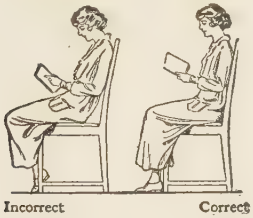
Incorrect Correct

Stand tall, as if being hung by the top of the head. The feet should be parallel, toes pointing straight forward.

FIG. 196. The simplest possible statement of the customary instructions. The latest cards use a photo instead of a drawing. Series IV-A.

POSTURE

How to Sit Correctly



Incorrect Correct

Push the lower spine well back in the chair and then lean back. You should not slide down in the chair. Sit tall.

How to Lean Forward

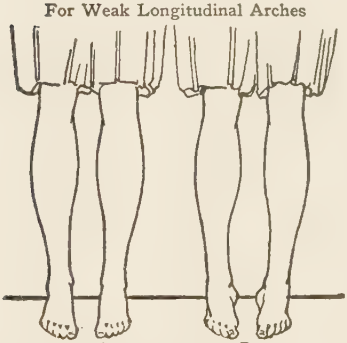
Incorrect Correct

Lean forward from the hips and not from the waist or neck.

FIG. 197. Points often forgotten. Series IV-C.

FOOT EXERCISE

For Weak Longitudinal Arches



A B

Foot Rolling Outward

POSITION — Stand with feet parallel. **A**

MOVEMENTS — 1. Raise inner border up and out, knees straight, toes and heels on floor. **B**

2. Replace. **A**

Repeat 10 to 30 times, resting after each five.

Note: All foot exercises should be done in stockings or barefooted.

FIG. 198. A splendid foot exercise. Commonly recommended. Series VII A-2.

FOOT EXERCISE
For Weak Longitudinal Arches
POSITION — Stand with toes together, heels three or four inches apart.
MOVEMENTS — 1. Raise feet with toes together, keeping heels on floor.
2. Replace.
Repeat from 10 to 30 times, resting after each five.
Note: All foot exercises should be done in stocking feet or barefooted.
Foot Raising

FIG. 199. A modification of a classic exercise. Series VII A-1.

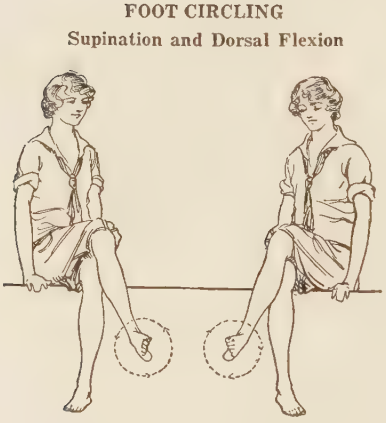

FOOT CIRCLING
Supination and Dorsal Flexion
POSITION—Sit with R. leg crossed over L. knee. Toe in with supporting foot
MOVEMENTS—Make circles with R. foot. up, out, down, in. Make strong effort on "in" and "up" and relax on "out" and "down."
Change position and repeat L. 30-40.

FIG. 200. An excellent foot exercise for both arches. Series VII A-3.

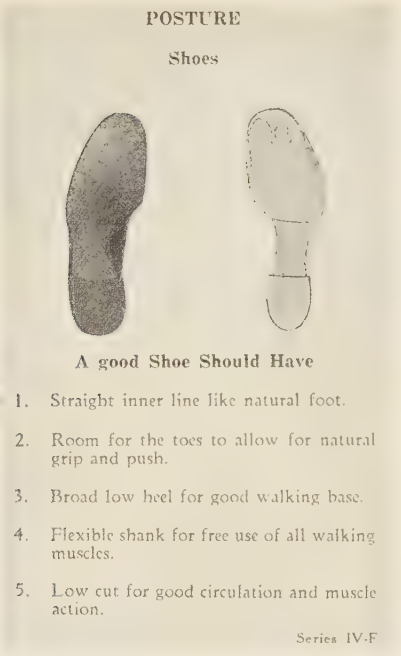

POSTURE
Shoes
A good Shoe Should Have
1. Straight inner line like natural foot.
2. Room for the toes to allow for natural grip and push.
3. Broad low heel for good walking base.
4. Flexible shank for free use of all walking muscles.
5. Low cut for good circulation and muscle action.
Series IV-F

FIG. 201. These views would be supported by most experts. Flexible shank shoes have never attained wide use, however. Series IV-F.

EXERCISE FOR CONSTIPATION

(Exercise to be taken morning and night after emptying the bladder)

POSITION — Stand with arms hanging at sides (or hands on hips) feet parallel, toes pointing forward.

MOVEMENTS — 1. Bend right knee quickly to chest.

2. Replace.

3. Repeat bending left knee.

Continue alternately in march time 10, 20 or 30 times.

FIG. 202. Intestinal massage by abdominal muscles. Series VII B-2. Other cards containing exercises for constipation are Series VII B-1, B-6, B-7, B-8, B-9 which are entitled "Doubling Over," "Double Knee Bending with Arm Pressure," "Treading," "Abdominal Contraction," "Stride Sitting, Trunk Circling." Also B-4 "Leg Abduction and B-5 a floor exercise. These latter cards are of a new group.

MENSTRUAL DISORDERS

Painful, too frequent, too profuse, too long continued and irregular.

Knee Chest Position

POSITION — Take position as illustrated above.

Hold for 3 to 5 minutes night and morning.

FIG. 203. Often prescribed by gynecologists. Series VII C-1.

MENSTRUAL DISORDERS

Hand Kneeling—swinging forward and back

POSITION — Kneel on floor, bend forward until chest touches knees, arms stretched forward, hands resting on floor shoulders distance apart.

MOVEMENTS — 1. Swing body forward and down to floor, straightening knees and bending elbows.

2. Return to starting position.

Repeat 5, 10 or 15 times.

FIG. 204. A variation of the knee-chest position, plus exercise. Series VII C-2.

MENSTRUAL DISORDERS

Dr. Mosher's Exercise

POSITION — Lie on back on floor or bed, with knees bent, feet resting on floor or bed; hand resting lightly on lower abdomen.

MOVEMENTS — 1. Raise abdomen.
2. Relax abdomen.
3. Contract abdomen forcibly.
4. Relax.

Repeat rhythmically, without strain or jerking, 10 times.

FIG. 205. The Mosher exercise. Series VII C-30.

CORRECTIVE MEASURES FOR FEET

In practice, except in young children, it is customary to pay little attention to flat feet unless of marked degree or if accompanied by symptoms of strain, such as local pain or pain up the leg. Nevertheless, in the school child with flat feet of moderate degree unaccompanied by symptoms, it may be wise to raise the inner border of the heel $\frac{3}{16}$ to $\frac{3}{8}$ inch by means of a lift, in order to place the foot in the correct weight bearing lines -which are the outer half of the heel, the outer border of the foot and across the anterior arch.

Some makes of shoes for young school children already have this lift incorporated. However, many orthopedists prefer to have the lift *only* if prescribed by the physician.

In general regarding the selection of shoes the following points must be observed:

1. No two persons' feet are exactly alike; therefore a single last will not fit all feet.

2. The shoes chosen must be fitted as carefully as gloves.

3. If the shoe is believed to be too small, a tracing of the foot upon a sheet of paper, cut out and compared with the foot area available in the shoe, will rapidly solve the question of size both in length and width.

4. The presence of callouses is a sign of badly fitting shoes, the callouses representing points of pressure, except in cases with anterior arch callouses. In fitting a new pair of shoes, care must be taken to furnish ample room in the region of such callouses.

5. The most suitable last for most feet is the modified orthopedic type.

6. Moderately low heels should always be worn. In the case of adults who have used high heels for years, the process of adjustment must be gradual and the height of the heels lowered gradually.

Plates for flat feet are used in severe cases but are valueless unless properly fitted. The most successful plates are made from plaster casts of the feet. In the growing child, the plates will have to be changed fairly often. At best they are "crutches" and should be used only on definite proof of inability of the child's foot muscles to support the arch without them.

Footlights.[1] "A daily foot bath. Warm soapy bath at night; use foot brush same as hand brush. Scrub the soles well; dry carefully, especially between the toes. The use of a simple talcum powder afterward is very agreeable.

"*Care of the nails.* They should be cut straight across, never in at the corners, as this predisposes to ingrowing nail and infection. Nails should be smoothed with a file after cutting.

"*Stockings.* Be sure they are half inch longer than the foot measures; short stockings cramp the toes. They should be frequently changed and always turned and aired at night. Very young children can learn to wash the stockings so as to have frequent clean ones.

"*Points in healthful shoes.* Straight inside line. Low broad heel. Wide flexible shank. Plenty of room for toe spread. Note wearing of the shoe on the inner side of the ankle. Note pronation or supination of ankle, frequent forerunner of flat foot. Notice if heel of shoe is level or run over. Should be kept level. Have two pairs of shoes if possible and wear them alternatively; better for feet, and the shoes wear better. Shoes should be well aired at night.

"*Manner of walking.* Note toeing in; toeing out; straight Walk with feet parallel and straight ahead."

THE POSTURE CLASS

Purpose. An arrangement, more or less temporary in character, for special instruction and special supervision for uncomplicated defects in posture.

Standards of admission. Cases are referred to the classes usually by the physician upon decision that the defect is not connected with any pathology such as tuberculosis. Sometimes an examination by an orthopedist is desirable. Certain cases of moderate or mild severity can be selected by the physical instructor and given corrective exercises.

Room. Location and size are unimportant. The seats and desks must be properly adjusted, if a special classroom is used. Frequently the class is held for exercise only.

Number of children. This depends on the capability of the teacher. Thirty is ample.

[1] Sherman, Florence G., M.D.: School Life, Vol. IX, Sept., 1923.

Teacher. Should be an experienced grade teacher with special training in physicial education and corrective methods. She must be a person of unusual zeal and patience.

Program. This differs from similar work of the grade only in that special corrective exercises suitable to the individual must be given as well as the general physical exercises. The teacher throughout the day should be on the alert for any sign of slovenly posture and should at once see that it is remedied. This can be done without such watchfulness becoming an annoyance and a detriment to the child's class work.

Alternative. Special exercises plus interested watchfulness of the regular grade teacher.

CHAPTER XIV

SCHOOL CONSTRUCTION AND SANITATION

This chapter is intended to summarize health standards for school buildings. These standards may be useful when new buildings are under consideration and may serve as a basis for the regular repair programs which should be inaugurated by every school system, part of the year's budget being devoted to the modernization or repair of some portion of the school plant. The majority of states have codes covering many of the items in this chapter. These must be adopted as the minimum which is to be accepted and every effort should be made to meet them.

Where possible this chapter will suggest means by which the rural school may approximate the standard outlined. Those in charge of rural schools must be able to devise simple means of approximating ideals of sanitation.

In setting up any standards for school construction and sanitation, it is recognized that this cannot be done dogmatically. Certain general principles can be given and from these, the reader may obtain suggestions which are applicable to local needs.

SITE[1] FOR THE SCHOOL

The choice of site depends on what is available. "Other things being equal, that site is preferable which is: more centrally located; more likely to fit future needs; more accessible to the public highway: rural schools not over 2 miles from the most distant home if the children walk—not over 6 miles if they ride; located on the more quiet street; more free from noise; more free from dust; more free from unpleasant odors; more free from immoral or disturbing influences; less likely to be hemmed in by surrounding buildings (every child should be able to see the sky from his seat); more remote from dangerous street or railroad crossings; of larger area (50 square feet per child is the minimum requirement for play; 200 square feet per child for running games and an extra area of garden space); (rural schools at least 3 acres for school and playground); with more sunlight; more protected from winds; on higher ground; not on hilltop or hillside; of the more permeable soil; with less decaying organic matter in the soil; of dryer soil; more easily cultivated.

THE SCHOOL BUILDING

General plan. At present the I, L, T, or H shapes are preferred because they are more adequately lighted and may be better ventilated than the square solid type. Details of construction will not be discussed except where

[1] Ayres, Williams and Wood, Healthful Schools, p. 11, Houghton Mifflin Co., 1918.

the question of health is to be considered. All details of a school building have an effect on health and must be viewed from the health point of view as well as from other aspects.

The school building is usually a compromise between the highest ideals of construction for health and what is permissible architecturally since the public still demands and will continue to demand some beauty as well as practical construction in schools. Factories do not suffer from this handicap and are therefore more healthfully constructed.

Classrooms. The ideal is a room for about 40 pupils. Size is about 24 by 32 feet, and 12 feet high. This allows about 230 cu. ft. per child. Standard is 200 to 300 cu. ft. per pupil.

Open-air classrooms. Such rooms for many, represent the ideal classroom. Where used, blankets, and possibly special costumes are needed to provide extra warmth while the children are studying. A warm room for retiring occasionally is desirable and there must be special provision for storing, warming, and drying special clothing used when outdoors.

Lunch rooms. These must be well-lighted, easily accessible, well-ventilated, and attractive. Chairs and tables should be furnished if possible. Kitchen must be properly ventilated to prevent odors penetrating the whole school building, as is commonly the case.

Health room. This has been discussed in another chapter. There should be at least one room for the doctor and nurses, preferably another for the dentist and dental hygienist. It is very desirable to have a waiting room, examining room, dressing room and toilet, preferably located next to the principal's office. Screens are useful in dividing off spaces to improvise several rooms, if only one is available. Berkowitz[1] has prepared the following:

Table of Essential Requirements for School Medical Room[2]

1. Location. (*a*) *Accessibility.* The room should be easy of access to pupils and to visitors. As a rule the latter are parents of children called to consult with the doctor, nurse, or principal. It should not be higher up than on the second floor. It is advisable to have it near the administrative offices unless these are too far up.

(*b*) *Practicability.* The room should be so located as to receive a maximum of natural light. Proximity to playground or gymnasium is undesirable, owing to the noise, which interferes with hearing tests and the work generally.

2. Special Room. All features of construction and equipment should indicate that the room was especially planned as an examination room. Use of this room as either an eye clinic or dental clinic is undesirable, but not entirely objectionable. The use of a teachers' room, a small office room, or other small accessory room for this purpose should not be tolerated except as a temporary arrangement.

3. Waiting Room. A vestibule or small waiting room is necessary. Such place must be provided for children and parents waiting their turn to see either the doctor or the nurse. It is a serious error to have strangers present in the medical room during physical examination or consultation.

[1] Berkowitz, J. H.: Standardization of Medical Inspection Facilities, Bulletin, 1919, No. 2, pp. 17–22. Department of the Interior, Bureau of Education, Washington, D. C.

[2] Paragraph numbers refer to figures in Survey Blank.

4. Dimensions. The room should be sufficiently long to allow a 20-foot line for vision tests. Where utterly impossible to attain this length, a 15-foot line may be used. The necessary distance might also be obtained by a diagonal line, provided the requirements for placing the test charts are not violated.

5. Natural Light. (*a*) *Windows.* The window exposure and other factors should be considered as they would be with reference to a classroom. There should be ample light, but glare must be carefully avoided. The window area should equal approximately one-fourth of the floor area. A greater proportion might involve an excess of light. If such a condition exists, the light must be properly regulated by means of window shades No curtains, no flower pots, or other ornaments on window sills.

(*b*) *Rating by percentage.* This is merely a convenient, if arbitrary, method, applied in much the same manner as the marking of pupils' work and recitations. Excellent, 25 percent or more; Good, 20 to 24 percent; Fair, 15 to 19 percent; Bad, less than 15 percent. Figure to within 0.01 percent of next higher rating.

(*c*) *Grading by judgment.* Sufficient light, if ordinary newspaper type or 20-foot test line is easily read at far end of room by a person with normal or corrected vision.

(*d*) *Shades.* Amber color is considered best. Material should not be torn or cracked, and the roller springs and cords should be in good workable condition.

(*e*) *Interior colors.* Wall coloring with reference to light for a medical room may be ranked in the following order: (1) White; (2) light buff; (3) dark buff or tan; (4) green. This order is equivalent to Excellent, Good, Fair, Poor.

6. Artificial light. Artificial light should be overhead and indirect or semiindirect.

(*a*) *Electric.* The size and number of bulbs should be determined by an illuminating expert and should attain a minimum of 3 foot-candles. Type B are vacuum filament lamps and type C are nitrogen gas filled lamps. The latter are powerful and intense and should be very judiciously shaded. Bulbs should be "frosted" if the direct system of lighting is used. Burnt out or "dead" lamps should be immediately replaced. Failure to do so is a discredit. Any method of shading that will minimize glare is satisfactory. Reflectors, whether of polished metal, prism glass, or any other glazed material, are more often harmful than useful. If glass globes are used they should be "depolished" or dull, not ground glass.

(*b*) *Gas.* Open jets are objectionable, as much for the fire hazard as for the poor light obtained. A wire frame or basket around the gas jet is serviceable as a protection against fire and should be used even on gas lamps with mantles and globes, if within reach of children. When gas is the only illuminant available, it should be so utilized as to attain the same standard as with electricity.

7. Vision tests. Only where the medical room is too small for the purpose should these tests be made outside of the room. The Snellen or other charts should be well lighted. Side illumination is best. Direct illumination is good, if intelligently regulated. Patients must never face the source of light. If a lamp is used to light the chart, it should be properly shaded, every care being taken to keep rays of light deflected from patient.

Note. Snellen and other test charts are prime necessities. The subject is here considered merely with reference to light. Otherwise professional paraphernalia are beyond the scope of this survey.

8. Hearing tests. Hearing tests are ordinarily made either by watch or whisper. Any kind of noise is a disturbing factor.

9. Equipment. A minimum of three chairs, not including those for waiting persons. One or two benches may suffice for the latter, although chairs are always to be preferred.

Weighing scales with measuring rods are of utmost importance with the growing attention given to the nutrition problem.

Supply cabinets and record files should be such as to afford ample storing and handling facilities for records and materials. Other equipment, only as actually needed by doctor and nurse. (See also list in Appendix.)

10. Sanitary condition. Windows, floors, furniture are either obviously clean or they are not clean. There are no intermediate degrees to an intelligent and experienced observer. Such articles as are not actually in use in the work of the school nurse and doctor are to be considered as unnecessary.

11. Observations. Odds and ends which reflect conditions in the room and the use made of it should be noted, whether creditable or otherwise.

BLANK FORM FOR SURVEY AND INSPECTION OF MEDICAL ROOMS

Medical Room

Date of survey.....
Weather.....
School.....Address.....Date of erection.....
1. Location of room: Floor.....Adjoining rooms.....
2. Special rooms: Yes. No. (If no, for what other purpose used?).....
3. Special waiting room or vestibule: Yes. No.
4. Size of room:

	Length.	Width.	Floor area.
Main room			
Anteroom			
Total, both rooms			

5. Natural light: Exposure—E. W. N. S.
   Windows:
   Total area.....Proportion to floor area.....
   Rate:
   Excellent.....Good.....Fair.....Bad.....
   Grade according to judgment: Sufficient.....Insufficient.....
   (Test by reading 20-foot line of Snellen chart.)
   Shades:
   Color.....Condition.....
   Wall coloring:
   Green.....Buff.....Dark.....Light.....White.....
6. Artificial light:
   Electric:
   Overhead.....On walls.....
   Number of bulbs.....Type "B"......"C".....
   Plain.....Frosted.....Half frosted.....In order.....Dead.....
   Reflector....Color.....Globe—Plate.....Polished.....Dull.....
   Gas:
   Open jet.....Open jet with wire frame.....
   Grade according to judgment: Sufficient.....Insufficient.....
7. Vision tests: Made in room.....Outside.....
   Snellen chart:
   Where placed with relation to light.....
   Side illumination.....Direct illumination.....
   Is it exposed all the time?.....
   Condition: Good.....Clean.....Soiled.....Torn.....Bent.....
   Is there artificial light above chart controllable by doctor? Yes. No.
   Other test charts used?.....
8. Hearing tests made: Yes. No.
   By watch.....By whisper.....
   Noise from outside of building.....From within.....
9. Equipment:
   Chairs (give number).....Supply cabinet.....
   Record file.....Table.....Weighing scales.....
10. Washing facilities:
    Running water.....Hot.....Cold.....
    Soap.....Individual towels.....
    Faucets in working order.....Drain.....
11. Sanitary condition:

	Clean.	Not clean.	Date last cleaning.
Floor			
Walls			
Windows			
Furniture			

    Presence of unnecessary articles, etc.
12. Observations: State any striking or unusual features. Use other side.

TYPICAL EQUIPMENT AND SUPPLIES IN MEDICAL ROOMS, NEW YORK CITY SCHOOLS

LISTS AND SUGGESTIONS BY DR. S. JOSEPHINE BAKER,[1] DIRECTOR, BUREAU CHILD HYGIENE, DEPARTMENT OF HEALTH, NEW YORK CITY

EQUIPMENT

Desk, wardrobe, medicine cabinet, couch, two chairs.

In the newer schools, where distinct provision has been made for the medical inspector, the room is equipped with a basin and running water.

It will be well to add scales with measuring rod, electrically lighted vision chart, portable screen, and filing cabinets suited to the particular kind of records kept.

MEDICINES, ETC.

Cotton, gauze, bandages (1 and 2 inch), boracic acid, green soap, collodion, tincture of iodine, sulphur ointment, white precipitate ointment, vaseline, peroxide, lysol, aromatic spirits of ammonia, hand scrub, tongue depressors, toothpicks.

In those schools where it may be desirable to treat simple eye conditions in pupils who fail to visit the dispensary regularly or who can not afford the services of a private physician, provision should be made by adding to the equipment articles such as argyrol, cocaine, bichloride of mercury, atropine, alloy, bluestone, yellow oxide of mercury, nitrate of silver.[2]

Gymnasium. The National Child Health Council[3] recommends that no gymnasium be smaller than 50 × 80 or less than 18 feet in height. Abundant sunlight, adequte ventilation, and air movement are essential. The floor should be constructed of carefully selected maple boards, well-laid. Showers should be supplied, as should lockers for street clothes during exercises and for storing the gymnasium suit during the time between exercise periods. Lockers must be well-ventilated.

Where economy demands (whether from financial necessity or from lack of space), the gymnasium should be constructed for use as an auditorium and for play purposes as well as for gymnasium work. Community centers in many cities use the school gymnasiums for their most important activities, and public meetings are frequently held in such rooms. The Physical Director's office should be similar to other offices but near the gymnasium.

The dressing and locker and shower rooms should be at least 10 feet high. It is essential that they be heated, ventilated and well lighted. Heating is particularly important because the lockers are constantly filled with damp clothing, hung up for drying.

Boys do not require individual dressing booths. All may dress in one room. Sufficient space is the main requirement.

The amount of space required for the locker and dressing rooms will depend upon two factors: (1) the total number of students for whom lockers must be provided, and (2) the number of students for whom dressing space must be provided in any one period. The first factor is easily determined. The second depends upon local administrative arrangements.

Ventilated steel lockers are desirable. Wooden lockers are easily broken into and are in need of constant repair. Lockers should be not less than 12″

[1] Berkowitz, J. H.: Standardization of Medical Inspection Facilities, Bulletin, 1919, No. 2, pp. 17–22. Department of the Interior, Bureau of Education, Washington, D. C.

[2] See Newark's Standard list of School Health Supplies on p. 55.

[3] Health for School Children, p. 61, Bureau of the Interior, Washington, D. C., 1923.

× 12″ in cross section and at least 36″ high. Lockers in the boys' room may be arranged in rows, two lockers high, against the walls and in parallel rows, with benches and a dressing space between rows. Lockers for girls may be arranged in rows against the walls or in the dressing booths, in which case the booths must be made larger. Girls' lockers should be slightly larger than the boys' lockers. Girls' dressing rooms should be equipped with hair driers, especially if the school has a swimming pool.

The cubical locker system has certain advantages in large schools. With this system each student has a small box, wire basket or hanger for clothing when it is not in use. The box, basket or hanger is handed to an attendant in a store room, who files it away until it is called for. Lockers are provided in the dressing rooms for storage of street clothes while students are engaged in physical training activities. As many lockers are required with this system as there are students in one class. This system requires fewer lockers, effects a saving in locker room space and permits easy inspection of each student's effects.

The boys' shower room should be situated between the dressing room and the swimming pool. Showers should be of the overhead type, about 4 feet apart; a series of showers on either side of the room. Hot water for showers is essential. A good patented non-scalding mixing valve should be installed on each shower. The number of showers required will depend upon the number of students that will be present at any one time. One shower will accommodate not more than 5 boys. Insufficient showers mean a loss of time, congestion at the end of each period, and resulting disciplinary difficulty. If possible, there should be a room for drying between the shower room and the dressing room. This prevents contact between those who are dressing and those who are drying themselves.

To determine the desired area of the boys' locker and dressing room, multiply the number to be accommodated by 15, which is approximately the area in square feet needed by each boy in dressing, and add the total area required for lockers.

More floor space is required for dressing and shower facilities for girls than for boys. Approximately thirty five square feet per girl are needed. Girls' dressing rooms should not be open. Enough private dressing booths should be provided to accommodate the largest number of students present at one time. One shower booth should be provided for each two dressing booths. A smaller proportion of shower booths to dressing booths causes loss of time and makes it practically impossible to enforce shower regulations. Shower booths should be equipped with individual side showers with mixing valves and should be placed at an angle so that the stream will not wet the hair. Each booth should be between three and four feet square and should contain a bench. Walls between booths need not be more than six feet in height. Entrances to booths may be covered with canvas curtains or equipped with doors.

A formal plan for the use of showers. An excellent administrative plan is used in some women's colleges and high schools. Locker blocks include a combination of box lockers of the cubical system type, and service lockers

for dressing. Students are sent into the showers in squads formally. The matrons turn on the water and control the temperature of the showers. By such a plan the matron knows:

1. Whether the student actually takes a shower;
2. The temperature of the water.

Swimming Pool Construction[1]

Pools fall into two classes, indoor and outdoor, which involve somewhat different problems for the builder. The indoor pool is the most common type and its use in connection with athletic contests has developed certain recognized standards of construction and equipment.

The indoor pool is ordinarily built of reinforced concrete or steel, lined with tile, and it must be absolutely watertight. When the pool is located in a basement or excavation, where excessive ground water is met, the steel tank is used. The steel shell serves as a lining. Because of the better lighting and ventilation, and the advantage of leaving the basement free for power plant, heating and purifying apparatus, many pools are now being placed in the upper floors of buildings.[2] When this is done the design of the building must provide adequate support not only for the tank itself but for the added weight of the water with which it is filled.

The standard dimensions of swimming pools for athletic contests are: width, 20 feet; length 60 feet, and larger sizes in multiples of 5 feet of width and 15 feet of length. The depth of water should be not less than 3 feet at the shallow end and 7 feet at the deep end. Probably the most satisfactory bottom design is the so-called spoon shape. This has a gradual slope from the shallow end to the middle of the length. The other half of the tank is sloped both ways to give the greatest depth at a point about 15 feet from the deep end. Most pools are not over 7½ feet deep but for diving contests 8 to 10 feet deep is frequently provided.

Colored tiles are used to mark the sides and bottom of the tank at 5 foot intervals and in various ways for athletic contests. Distance and depth numerals and safety lines are also provided. The diving board is 12 to 13 feet long and 20 inches wide and projects not more than 2 feet over the pool with its fulcrum placed one-third of the length from the free end. A wire cable is often anchored into the walls, extending the length of the pool, to support a swimming belt to be used in instruction.

Outside pools have been less standardized but are attracting considerable attention even where there is surf or other natural bathing facilities because the danger of contamination can be controlled more easily. Outside pools are usually built of waterproofed concrete but where natural topography permits, an artificial lake is sometimes formed. Sand is generally used for the bottoms of the latter type.

[1] American Builder Magazine, Vol. 39, No. 4, p. 126–127. This material is used by permission of the publishers. A slight rearrangement in order had to be made for purposes of this book.

[2] Author's note. This statement does not hold true for schools. It suggests interesting possibilities, however.

There are no standard dimensions, or markings for the sides and bottoms of outside pools as they are seldom used for athletic contests. The size depends entirely upon the desire of the owner or institution. A capacity of from one half to three million gallons of water is generally provided. The depth is from 2½ to 10½ feet. From 30 to 50 percent of area is usually of a wadeable depth and the rest deep enough for swimming.

California specifications for swimming pools.[1] The pool walls should be vertical, and walls, floors and surroundings walks shall be surfaced with white tile, cement (white or gray), or other impervious material, with as smooth a surface as each use permits, for easy cleansing. The swimming pool floors shall not slope more than one (1) foot in 20 feet where the depth of water is less than 6 feet. Depth opposite diving stands and spring boards shall be at least 8 feet, 6 inches.

The entire pool shall be surrounded by a raised concrete curb at least 2 inches high by 12 inches wide, serving as a clean space in which bathers may sit and as a check against walk drainage flushing into the pool. Walks may slope toward or away from this curb to a grating-covered drain channel, or drain outlets in the walk. Walks shall be at least 4 feet wide in the clear. They shall slope at least one-half inch per foot toward the drains. All corners shall be rounded for ease in cleaning.

A scum gutter on all four sides of the pool, recessed into the side wall and designed to prevent bathers from having easy access with fingers, hands, arms, feet or bodies, shall be provided. Drainage facilities from such gutter shall be of such size and spacing that all overflows and splash shall be promptly carried away into a sewer and not returned to the pool or circulating system. Gutters or drains along the top or side of the wall, open and accessible to bathers, will not be permitted.

Care of the water in the pool.[2] While in some pools water is introduced by inlets under the water line, some designers consider the psychological value of allowing the public to see the continuous purification of the water. This is done by allowing the water to enter cascades or aerating towers about 8 feet high, producing a natural waterfall. Such cascades are often located near the center of the pool in an attractively designed pagoda structure. Sometimes a small display pump, in addition to the circulating pump, is installed to produce a continuous fountain of water at different points in the pool.

For circulating the water a horizontal centrifugal pump is most commonly used. The motor should not be too small or it will operate under an overload part of the time. Hair, cuticle and other organic matter which accumulates in pools, has a tendency to clog the pump and to form a mass in the filter which is difficult to remove by washing. This is overcome by means of a hair and lint catcher which removes all solids before the water reaches the

[1] Sanitation of Swimming Pools, Special Bulletin No. 35, California State Board of Health. Summarized.

[2] American Builder, *loc. cit.* Slight rearrangement of material to meet the needs of this book. Used by permission of the publishers.

pump. It is cleaned by removing a plug, allowing the collected matter to flow out.

Solid matter which settles on the bottom and sides of a tank was formerly removed by draining the tank and scrubbing the walls. This involved considerable expense in labor, water and heating. A less expensive means is now available in the form of a suction tube with a stiff bristle brush within the suction nozzle. The device is connected to the suction side of the regular recirculating pump and the foreign matter by-passed directly into the sewer.

The equipment required to keep the water of a swimming pool thoroughly clean and disinfected is determined by the size of the pool, the number and sort of people by whom it is used and the nature of the original water supply.

1. Filters of a type and of capacities specially adapted to this purpose have been developed. Where these filters are used they are usually of a capacity to completely change the water in a period of 10 hours. With a pool 20 feet wide, 60 feet long and with an average depth of 5½ feet, this requires a rate of 5,000 gallons an hour. For good results a filtration rate of 3 gallons per minute, per square foot of filtering area is about correct.

2. In addition to the filter a coagulant tank may be used. This introduces a regulated flow of alum into the water. The alum reacts with the chemical salts in the water forming a bulky, gelatinous percipitate which forms a "mat" over the top of the filter bed so that the most minute particles of suspended matter are removed and the water delivered is clear and wholesome. Where fairly soft water is used a second tank holding soda ash is used for the purpose of increasing the alkalinity of the water and securing better coagulation.

3. A similar tank can be placed on the outlet line of the filter for use with hypochlorite of lime, which is an effective sterilizing agent, furnishing nascent chlorine.

4. Sterilization is accomplished by any of three methods. This treatment, to destroy bacterial life, is commonly used but is not always insisted upon. The three methods make use of chlorine, ozone, and ultra violet light.

(*a*) The chlorine method is probably the cheapest and simplest and is the same as that commonly used for sterilizing water supplies of municipalities. The apparatus usually consists of a small cabinet, for mounting on the wall, containing a tank of compressed gas which is applied to the water in measured quantities. About six pounds of chlorine are required for each million gallons of water.[1]

[1] A common method of chlorination is by dosing the water with hypochlorite of lime, which furnishes nascent chlorine. Dosage is regulated by the bacterial count. The method is inexpensive. The lime is placed in the water *after the day's* use of the pool, in order to have the chlorine well distributed by morning. This is to avoid the "chlorine eyes," which are mild cases of conjunctivitis resulting from excessive dosage of chlorine in the pool, or from unsatisfactory dissemination of the chlorine throughout the pool.

(*b*) Ozone is produced by the passage of an electric current through air. The ozone apparatus consists of a steel tower through which the water is passed and mixed with the ozone produced or generated by an ozonator.

(*c*) The ultra violet ray method involves a fused quartz mercury vapor lamp in a water tight protecting glass tube. This is held within a few inches of the arc in such a way as to permit action of the ray sufficient to destroy the bacteria. Its efficiency is dependent on the freedom of the water from turbidity and dissolved color.[1]

For enabling an operator to observe the conditions of the wash water, an open sump may be used or a sight wash glass can be placed in the water pipe. Two single registering gauges, above and below the filtering medium, show the resistance of the filter, excessive loss of pressure indicating that the filter needs to be cut and washed.

Six methods have been used for heating the water of pools but all but two are now considered practically obsolete. These are by the injection of live steam into the water, and by means of a live or exhaust steam water heater. Because the introduction of steam at high pressure into a pool causes noise and turbulence and forms a protruding object in the wall of the pool the second method is considered the better.

REGULATIONS FOR SWIMMING POOLS

The following regulations are absolutely necessary:

1. The heart of every swimmer should be examined before admission to the privileges of the pool.

2. An attendant should always be on duty when the pool is in use.

3. No person with signs or symptoms of communicable disease or premonition of communicable disease should enter the pool.

4. Bathers with cuts, bandages, corn plasters, or vaccinations should not be allowed in the pool.

5. The plunge must be preceded by a cleansing shower with hot water and soap. If bath suits are used, they must be removed and hung over the door of the shower booth before the cleansing shower is taken. Women must remove any cold cream and powder.

6. In men's pools the clothing should never be more than a pair of bathing trunks.

7. In girls' and women's pools, the clothing should be a one piece swimming suit.

8. Every suit must be sterilized after each time used, and kept in the building by attendants.

9. No unsterilized clothing may be worn in the pool. Women must wear rubber caps.

[1] Frequently, refiltration is combined with some method of sterilization, thus affording two methods of purifying the water.

10. Expectoration in the pool is prohibited. The scum gutter is to be used.

11. A handkerchief may not be taken into the pool.

12. Running on the tile edges of the pool is forbidden.

13. Visitors must stay in the gallery.

Regulations Governing Detroit Swimming Pools[1]

Temperature and heating standards. The temperature of the water of the pool shall not be under 72 degrees nor over 76 degrees.

The temperature of the air in the pool room shall be not less than 3 degrees warmer than the temperature of the water and shall not exceed 82 degrees.

If the temperature of either water or air exceeds the maximums given above, the pool shall not be used until the temperatures have been brought within the required range.

If the temperature of the water gets below 70 degrees or the air less than 3 degrees warmer than the water, the pool shall not be used until the temperatures have been brought within the required limits.

Rules for users of the pool. (1) A warm soap bath without suit must be taken before entering the pool. A thorough bath is necessary. Soap must be used, otherwise admittance to the pool will be refused.

2. If it is necessary to use the toilet or urinal, be sure to do so before taking shower.

3. Each user of the pool must report to the Swimming Instructor after bathing and before entering the pool.

4. Wherever suits are required gray cotton suits must be worn. (Heavy woolen suits shed lint and clog the filters and also your lungs. They cannot be kept as clean as the lighter suits and the dyes often "run.")

5. Persons with colds will be refused admittance to the pool.

6. Persons with boils, skin eruptions, inflammed eyes, or other similar infections will likewise be refused admittance.

7. The Swimming Instructor may bar from the pool any person who in his opinion appears unclean or diseased. Persons who have skin eruptions or any possibly communicable conditions should be referred to a doctor by the Swimming Instructor.

8. Spitting or otherwise polluting the pool water is forbidden. If it is necessary to spit do so in the scum gutter and near one of the outlets for the gutter. (If this is done the spittle will be carried away with the first wash.)

9. Persons failing to comply with any of the above regulations will be refused admittance to the pool.

10. After leaving the pool be sure to thoroughly dry the body before dressing.

Responsibilities of Principal of School or other persons in charge of the administration of buildings containing swimming pools (1) Responsible for seeing that rules and regulations coming under the jurisdiction of Swimming Instructor, Engineers, Janitors, and Bath Attendants are properly carried out by such individuals.

Swimming instructors. (1) Shall be responsible for seeing that all the rules and regulations affecting the users of the pool, as heretofore enumerated, are properly carried out.

2. Shall be responsible for reading and interpreting to his class all Rules for Users of the Pool.

3. Shall inspect all users of the pool, after they have bathed, but before they enter the pool, to see that such bath has been properly taken and that each user is free from cold, skin infection or other ailment as enumerated under Rules for Users of the Pool.

4. Shall refuse admittance to any user of the pool who fails to live up to the requirements or who in his opinion is unclean, or has a cold, boils, skin infection or other ailment which in his opinion might be detrimental to other users of the pool or to the condition of the water in the pool.

5. Shall be responsible for seeing that showers are operated properly and that each user of the pool takes a warm soap shower without suit before entering the pool.

[1] From Detroit Board of Education and City Dept. of Health.

6. Shall be responsible for the cleanliness of locker rooms, suits, and towels.

7. Shall dismiss the class and report such action to principal of school or other person in charge of building if temperature of air or water fails to come within the required limits, as given in paragraph one.

8. Shall report to the responsible person any condition of the pool which in his opinion may be detrimental to the efficient operation of said pool.

9. Shall use every effort to prevent the tracking of dirt into the pool. In many instances this has been accomplished by the use of a hose with running water; the bathers being required to wash their feet before entering the pool.

10. Shall be responsible for seeing that all doors entering the pool room are locked when pool is not in use.

11. Shall be responsible for the safety of the users of the pool at all times.

12. Shall not leave the pool during swimming hours unless another person qualified for the responsibility has reported to assume charge in the absence of the regular instructor.

13. Shall be dressed suitably to enter the water and act in an emergency.

14. Shall be responsible for maintenance of a high standard of conduct and personal habits among all users of the pool while in the locker rooms, showers and pool.

15. Shall be responsible for posting in a conspicuous place, on a bulletin board, preferably in or near the pool room, the Weekly Swimming Pool Report and daily filling out such portions of it as apply to his or her work.

Engineers. (1) Shall be responsible for the maintenance and operation of all swimming pool equipment and the cleanliness of the pool and the water of the pool.

2. Shall see that temperatures of water and air meet the requirements as given in paragraph one.

3. Shall see that the pool is free from sediment and accumulation of lint and hair. Shall see that the walls and bottom of pool are free from dirt and discoloration and that the scum gutters are flushing properly and free from dirt.

4. Shall see that the pool is cleaned as often as is necessary to maintain the above requirement. The frequency of cleaning will be determined by the average number of persons using the pool and the condition of the water as indicated in previous reports. Instructions as to frequency of cleaning will be given the engineer by either the Chief Engineer of the Board of Education or the Engineer of the Department of Health.

5. Shall see that each time the pool is cleaned all the water is let out and the walls and bottom and scum gutters are first scrubbed with some good cleansing compound and a stiff brush. This could be followed by scrubbing the walls and bottom and scum gutters with a mixture of chloride of lime and water (1 pound of chloride of lime to 5 gallons of water). After cleansing in this manner rinse the walls, bottom, and scum gutters thoroughly with a hose before refilling.

6. Shall be responsible for seeing that the level of the water is maintained at such a height as to insure a constant slight overflow into the scum gutter when the class is in the pool.

7. Shall be responsible, after the last class has been dismissed, for raising the water level to such a height that it will freely overflow into the scum gutter and thus remove all surface pollution. This is important and should be taken care of each day or night as the case may be.

8. In the morning he shall see that the water level is lowered to such a point that when the class enters the pool there will be a slight overflow into the scum gutter.

9. Shall operate the pool equipment for such length of time as may be deemed necessary by the Chief Engineer of the Board of Education or the Engineer of the Department of Health.

10. Wherever supplemental treatment of the pool water is necessary, such as the addition of hypo-chloride by hand, the engineer shall be responsible for administering such treatment in accordance with such rules as the chief Engineer of the Board of Education or the Engineer of the Department of Health may prescribe.

11. Shall be responsible for filling out daily such portion of the Weekly Swimming Pool Report as applies to his work.

12. Shall use every precaution to prevent tracking dirt into the pool room.

Department of health. 1. Shall be responsible for collecting water samples.

2. Shall be responsible for examining such water samples for total bacterial content and for the presence of organisms of the colon group.

3. Shall be responsible for seeing that placards, calling attention to the necessity for a warm shower with soap, are posted in conspicuous places in each swimming pool and locker room.

4. Shall issue regular reports relating to the condition of swimming pool water, such reports to go to all persons connected with swimming pool supervision.

5. Shall be responsible for filling in such portions of the Weekly Swimming Pool Report as apply to its work.

6. Shall be ready to cooperate in every way with those in charge of swimming pools in an effort to improve the condition of the water.

Regulations governing the bacterial content of the water will be drawn up by the Department of Health in consultation with the other organizations interested in swimming pool conditions. They are not included in these regulations since improvements in the regulations governing swimming pool water will doubtless be made from time to time.

Copies of these regulations should be in the hands of both day and night principals of schools, or other persons responsible for the administration of buildings containing swimming pools, both men and women and day and night swimming instructors, and both day and night engineers of all buildings containing swimming pools.

An Abstract of the Report of Committee on Otorhinologic Hygiene of Swimming[1]

"The Committee on Otorhinologic Hygiene of Swimming begs leave to submit the following report:

In certain states, notices are now suggested or prescribed, "warning persons with colds, head infections, running noses or ears or catarrh, that swimming or diving tends to force infection into the sinuses or ears, resulting in serious, if not fatal, consequences." The use of such notices should be suggested to the public health authorities of all the states.

It is suggested that oiled wool or other effective methods of closing the external auditory meatus be advised, in order to prevent external otitis.

It is further suggested that improper swimming or diving habits (such as in breathing when the head is more or less submerged; diving feet first with nostrils open; blowing the nose, coughing or hawking into the tank) should be forbidden by public health authorities.

Research has disclosed rapid lowering of body temperature and hence of resistance to infection, both from immersion and from exposure of the body in wet bathing suits; it is therefore suggested that a time limit of from forty-five minutes to one hour be placed on use of a pool by each bather in order that:

1. The number of bathers at any given time (bathing load) may be reduced.
2. The loss of body heat due to chilling may be minimized.

H. M. Taylor, Jacksonville, Fla.
Chairman
Hill Hastings, Los Angeles.
M. F. Arbuckle, St. Louis.
Lee M. Hurd, New York.
Ralph A. Fenton, Portland, Ore."

The Committee on Otorhinologic Hygiene of Swimming, in the same report, proposed the following rules for the administration of swimming pools:

[1] Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925 and published in the J. A. M. A. Vol. 85, No. 5, p. 357, Aug. 1, 1925.

"**Approved form of notice.** In order to maintain proper standards and protect the health of patrons, it is necessary to insist on observation of the following rules, which are approved and their strict enforcement required by the ———— State Board of Health:

Warning: Persons with colds, head infections, "running nose or ears," catarrh, are warned that swimming, diving, etc., tend to force the infection into the sinuses or ears, and result in serious if not fatal complications.

1. All bathers shall use shower baths, including soap, if necessary, before entering the plunge. (The plunge is not intended as a bath tub.)

2. Bathers who have been outside the bath house or plunge enclosure shall not reenter without passing through a foot bath and using a shower.

3. Bathers shall be forbidden to wear private bathing suits that are not properly laundered; light colored and undyed wool is suggested.

4. Women shall wear caps while in plunge.

5. Persons not dressed for bathing shall not be allowed on walks surrounding plunge, and bathers shall not be allowed in places provided for spectators.

6. No person suffering from a fever, cold, cough or inflamed eyes shall be allowed the use of the plunge. (These disorders may be transmitted to others.)

7. No person with sores or other evidence of skin disease, or who is wearing a bandage of any kind, shall be allowed the use of the plunge. (A bandage may conceal a source of infection.)

8. Spitting in, or in any other way contaminating, the plunge, and spitting on floors, runway, aisles or dressing rooms shall be prohibited.

9. Public combs or brushes shall not be furnished, and such articles left by bathers shall be permanently removed.

10. Eating within the plunge enclosure shall be prohibited.

11. Bringing or throwing into the plunge any objects that may in any way carry contamination, endanger safety of bathers, or produce unsightliness, shall be prohibited.

The majority of our patrons will observe these rules of their own accord and will render us a great service by reporting any infractions to the attendants. Any person failing to comply with the foregoing rules will be immediately expelled and denied the future privileges of the bath house.

Rules for sanitation and safety of swimming pools. (1) All swimming pools are to be maintained with a practical minimum amount of contamination. There shall be not more than 1,000 colonies per cubic centimeter of standard agar medium after incubating for twenty-four hours at 37°F. The *B. coli* content shall be such that gas is produced in not more than one and a half of standard lactic broth cultures after incubation for twenty-four hours with 1 cc. of water.

2. Water in the pool shall at all times of use be sufficiently transparent, under existing lighting conditions, that when the water surface is not excessively agitated by bathers, a person can stand at the side of the pool and see the bottom distinctly where the depth of water is 6 feet or less.

3. Facilities for adequate protection of the pool water against unnecessary sputum contamination by bathers shall be provided.

4. All persons known to be or suspected of being affected with infectious diseases shall be excluded from the pool.

5. Contamination of the pool resulting from lack of personal cleanliness of bathers shall be maintained at a minimum.

6. Construction and appliances shall be such as to reduce to a practical minimum the danger of drowning and of injury to bathers from falls or collisions.

7. Dressing rooms, hallways, toilet rooms, shower rooms and other places to which patrons of a bath house have access shall be kept clean and well ventilated at all times.

8. Bathing suits and towels, when distributed to bathers by the pool management, shall be clean and free from excessive bacterial contamination.

9. The management of the pool shall have printed and posted in conspicuous places about the establishment notices briefly informing patrons of the requirements to which they are subject in the maintenance of a safe and sanitary pool. A form of notice is suggested to pool operators; it should be so placed that all bathers cannot fail to read it before entering the pool."

COMMONWEALTH OF VIRGINIA
STATE BOARD OF HEALTH

Regulations and Directions for Collecting Samples of Water for Analysis.

Examination of water samples for bacterial content will be made by the State Board of Health when the results of such examination are directly applicable to the prevention of the disease and the protection of the public health. But as the value of the examination is largely dependent upon the care shown in collecting the sample and upon a knowledge of conditions surrounding the source of supply, the following regulations and directions must be observed in every instance:

1. The questions on the enclosed sheet must be answered, explicitly, so far as they apply to the supply from which the particular sample is taken. Other facts of importance affecting the supply should also be stated.

2. On the second page of the enclosed sheet draw on the diagram the relative position and distances of possible sources of pollution. Indicate also the direction of the slope of the ground and the relative elevations of the source of the water and of the points of possible pollution. Let the "X" in the center of the diagram represent the location of the supply.

3. After filling out the sheet, place it in container with sample and mail at once to the Laboratory of the State Board of Health. No report will be made on sample submitted until the information requested on the sheet is available.

4. In taking the sample, take the stopper from the sterilized bottle sent you by grasping the stopper through the cap. Do not allow anything to touch the neck of the bottle or that part of the stopper which fits into it. Fill the bottle from the water to be sampled, leaving a small bubble in the bottle. Tie down the stopper cap securely.

5. If the water is to be taken from a tap, let enough run to empty the house pipe before filling the bottle. If from a stream, spring or reservoir, take the sample well out from shore, moving the bottle, neck forward, up stream and avoid surface scum or bottom mud. If from a pump, work the pump at full capacity for five minutes before filling the bottle.

6. The sample should be plainly marked with your name, address and an identification mark, and should be sent prepaid to reach the laboratory as soon as possible. Postage at parcel post rates will be all that is necessary. The Postmaster's attention should be called to the fact that the package contains a bacteriological specimen and therefore should be pouched with first class mail.

FIG. 206. Practical directions for collecting samples of water for analysis.

TEACHERS' ROOM

Rest rooms for both men and women teachers should be comfortably furnished and provided with toilet facilities. Cots should be installed so that each teacher may lie down for 10 to 15 minutes near the middle of the day. When there is need, a small stove should be available for the preparation for hot lunches.

JANITORS' ROOM

This must be in the basement, near the boiler room. It is described in the section on janitor service.

STOREROOMS

Because of fire hazard, material should be stored in special rooms, not under stairs or in attics.

THE RURAL SCHOOL

The one-teacher country school should contain, in addition to the classroom:

(*a*) A small entrance hall, not less than 6 by 8 feet.

(*b*) A small retiring room, not less than 8 by 10 feet, to be used as an emergency room in case of illness or accident, for a teacher's conference room, for school library and for health inspection, a feature now being added to the work of the rural school.

(*c*) A small room, not less than 8 by 10 feet, for a workshop, for instruction in cooking and for the preparation of refreshments when the school is used, as it should be, for social purposes.

SPECIFICATIONS AND EQUIPMENT

Floors. These should usually be of concrete, overlaid with hard wood. Where younger children will be playing on the floor, and in the health office, battleship linoleum is best. Cement floors if unfinished create dust hazards.

Ceilings and walls. Ceilings and friezes should be white or light cream; walls should be light colored. Light warm gray, light buff, dark cream, and grayish green are preferred. The finish should be smooth and dull, thus permitting easy cleaning and avoiding glare from glossy surfaces. Walls are often covered with burlap to permit exhibits of pupil's work. It should be remembered that burlap catches and retains dust and requires frequent cleaning.

Woodwork. This should not be shiny and should be finished in light colors to make the room as bright as possible.

Desks and seats. Finish must be dull. The top of the desk usually slants about 15 degrees. The reader is warned to give careful thought before adopting any particular type of desk. When the classroom furniture is attached to the floor, the single pedestal type seems the most desirable for cleaning and for the pupil's comfort. Desks should be adjustable in the following manners and under the following conditions.

1. Seat should be adjustable up and down. If the back is of the type which only touches part of the pupil's spine, then special adjustments are necessary to permit its touching the correct part of the spine (dorsolumbar region).

2. Desk should be adjustable up and down. There should always be a plus and minus (backward and forward) adjustment on each seat.

3. The distance between the pedestals of desk and seat may have to be adjusted.

4. It may be necessary to change the size of a seat entirely, substituting a larger or smaller one.

Each child should have his own seat, adjusted to him—formerly difficult under the departmental, platoon, Gary, or similar systems (where a seat is

used by several pupils). But if several pupils use a seat, perfect adjustment to each is now possible by having 3 to 5 sizes of chairs in the room, as recommended in methods of Posture Seating.

Standards for adjustment. Many standards involving measurements are sometimes recommended. They are not practical. The following simple plan is usable and will give satisfactory adjustments. The child's feet should be placed squarely on the floor, knees at right angles. In this position one should be able to place the palm of the hand under the half of the thigh nearest the knee, without having pressure from the child's weight upon it. The depth of the seat should be about two-thirds the length of the child's thigh. The child's knees and the upper surface of the thighs should not touch the lower part of the desk but an interval of about two inches, or slightly less should intervene. The desk should be adjusted to permit the child to assume the normal writing position without rounding the shoulders, sitting forward in the seat or lowering one shoulder. The best writing position today is with both forearms resting on the desk, the edge of the desk being about one inch from the points of the elbows; both shoulders parallel; back and head erect, especially the back, since head may bend forward slightly. In this writing position the child's back should be supported comfortably by the back of the seat and the child's abdomen or chest should not be within 6 to 12 inches of the back edge of the upper surface of the desk.

The desks should be placed to permit light from outdoors to come over the left shoulder.

The Seating Problem and a New Solution for It

The seating problem. "We devote one period of 30 minutes each day to physical education and emphasize the subject of Posture. Through the remaining study periods we undo these lessons through the faulty construction of school seats and desks which induces postures that lead to many troubles, the most serious of which is scoliosis."[1]

At school age, the bones and muscles of children are soft and pliable. The ossification of the bones requires 20 years or more. Many bones may be compelled to bend while the child is growing, although this is impossible after ossification is complete. Because young bones are mostly cartilage, they take new shapes under repeated pressure. Hence, if a child's spinal column is held with the vertebrae at certain abnormal angles for several hours every day, the vertebrae become more or less wedge shaped. The child whose back is misshapen can not attain physical perfection.

Fatigue of pupils is influenced by the upright posture, that is, by the tone and strength of muscles. Fatigue lowers muscular tone, and this holds as true for mental fatigue as for physical fatigue.

Studies of "jerky feet," a fatigue manifestation of telephone operators, revealed that this condition can be eradicated by proper seating. Un-

[1] Address of Dr. David B. Corson, Supt. of Schools, Newark, N. J. before the Board of Education of that city, July 26, 1923. Used by permission of Dr. Corson.

doubtedly the restlessness and other fatigue manifestations of school pupils may be influenced favorably by proper seating, and in a few instances this improvement has been observed.

The new posture seating. The new method of *posture seating* follows partially successful attempts, especially in England, Germany, and the United States, to develop school seats which were correct anatomically and physiologically.

The familiar Boston school seat, developed by Goldthwaite and his associates, represents one of the outstanding steps in the development of modern school seating. Whitman[1] recognized the need for proper school seating and advocated the following standards:

"The seat of the *chair* should be deep enough to support the thighs, yet it should not interfere with flexions at the knees. It should be of such height as to allow the feet to rest firmly on the floor, and it should be inclined slightly backward, but arched somewhat forward in the lumbar region in order to conform to the normal lordosis when the child sits in the erect posture. The *desk* should be as close to the body as is possible, so that the child need not lean forward when reading or writing. The height of the desk should be slightly less than the level of the elbows when the child sits erect, and the inclination should be sufficient to hold the book at the proper distance from the eyes."

In the research on which the present method of *posture seating* is based, studies were made of normal skeletons and normal children, and of the variation in relation of torso, thighs, and knees of different individuals. The correlation of height-weight-age table standards with the intertrochanteric width of various types of children and adults was investigated and, from the evidence obtained, it is believed that weight has no apparent influence upon the type of seat needed for a given child, except to the extent that the body of the heavy child is of larger size, and therefore a larger seat is required for him.

The purpose of the posture seat was found to be to support properly the muscle bearing bones. Each posture seat and desk meets, in a practicable manner, the standards advocated by Whitman (see above).

Three sizes of posture seats were first developed. Further studies of the seats in actual schoolroom use, revealed the need of two more intermediate sizes which would be numbers two and four in the series of five used at present. In kindergartens, a number of different sizes of small chairs are used, varying in height from 6 to 12 inches, each being designated by a special color of star on the back of the chair, seven different colors being used to refer to the seven chair heights, from 6 inches to 12 inches inclusive. Once a child has been fitted with a chair of a certain size suitable for him, he can use any chair in the room which has the same colored star on the back. Thus he is always sitting in a chair which fits him properly. This method is used in the kindergartens of the Horace Mann School. In the Nursery School of the Institute of Child Welfare Research of Teachers College, New York City, the prekindergarten and kindergarten types of seat are used.

[1] Whitman, R.: Orthopaedic Surgery, Lea & Febiger.

Portable or fixed types of posture seats and desks are available. The fixed type is shown in Fig. 206A. It is an excellent example of the fixed type of seat, but modern educators are using such fixed equipment as little as possible, and the portable types of seats and desks are the more popular.

The portable styles are two. The first resembles the Moulthrop type of desk, but in it are eliminated such troublesome devices as (1) the long

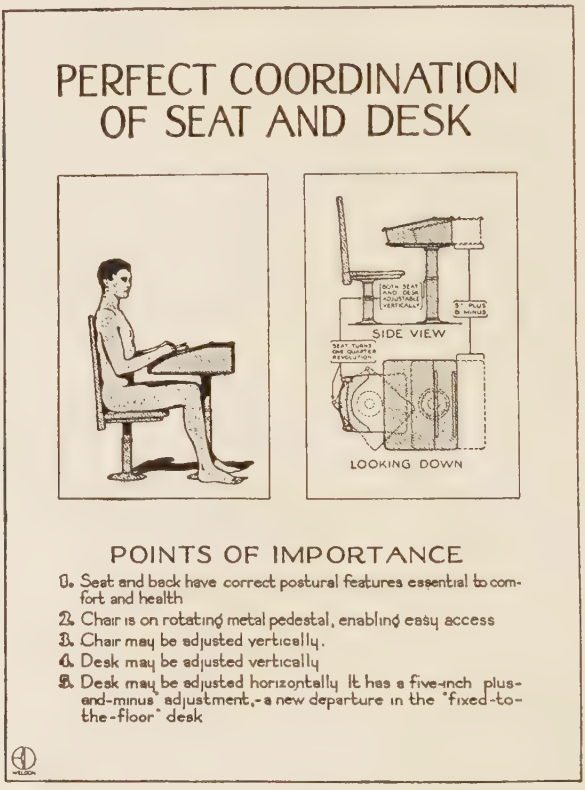

PERFECT COORDINATION
OF SEAT AND DESK
SIDE VIEW
LOOKING DOWN
POINTS OF IMPORTANCE
1. Seat and back have correct postural features essential to comfort and health
2. Chair is on rotating metal pedestal, enabling easy access
3. Chair may be adjusted vertically.
4. Desk may be adjusted vertically
5. Desk may be adjusted horizontally It has a five-inch plus-and-minus adjustment,-a new departure in the "fixed-to-the-floor" desk

FIG. 206A. A type of seat which can be adjusted properly for the individual occupying it. Note correct relationship between the parts of the seat and the body of the occupant. (Reprinted by permission of Earl Thompson, 276 West 43rd St., New York, N. Y.)

bar over which the child must bend to reach the drawer frequently placed under the seat of such desks; (2) the long arm-rest under the child's elbow, found in so many portable seats. The balance of the chair is better than in most portable seats, resulting in less danger of tipping over when the child bends to the side, and the space for books is beneath the top of the desk itself rather than in drawers or racks attached to the seat or forming part of it. Authorities believe that the necessity of reaching frequently for books, placed in a drawer beneath the seat, tends to make the pupil's vertebrae

wedge-shaped and a lateral curvature of the spine may result. In the portable units which combine desk and seat, the desk has plus and minus, and up and down adjustments.

FIG. 206*B*. Type D, posture furniture.

FIG. 206*C*. Bronxville type of posture furniture.

The most popular portable types consist of separate desks and chairs. This furniture is very ornamental since the seat and the desk are designed for beauty as well as scientific accuracy. The chairs resemble ordinary

side-chairs except that the seat is specially carved to meet the anatomical needs of the child and in some cases there is a slide in the mid-back to permit the occasional very tall child to make miner adjustments to his own back, which is longer than the average. The backs are of the ladder-back or half solid types. In the latter the upper half of the back of the chair is solid, with special curve at the lower end of the solid portion, the curve touching the pupil's back just above the iliac crests. This type of chair is found in the Bronxville, N. Y. schools.

The portable desks are of several types, all standing on four legs. In the Bronxville, N. Y. classrooms, the top of the desk is flat. A space beneath the desk top is provided for books. In the kindergarten, tables are used seating six children; in the lower grade, double tables are provided, seating two children each; in the upper grades and high schools, single individual

FIG. 206*D*. Milburn type of posture furniture.

desks are used. The Milburn, N. J. installations, when of the separate desk and seat type, have the ladder-back seats, and the desk tops have a slant of fifteen degrees which is recognized by authorities as the proper angle for the slanting desk top. Apparently either the flat or slanted type of desk is perfectly satisfactory.

The following *favorable conclusions* are the result of observations in classrooms equipped with posture furniture and discussion with educators who have had practical experience with the *posture seating:*

1. There seems to be no known drawback to these posture seats. That they will be improved is to be expected. Probably minor alterations will be largely in the angle and curving of the back of the seat.

2. The furniture is light, strong, appeals to the esthetic sense, and is well-liked by those who use it. Normal children, once accustomed to it, invariably claim it is more comfortable than ordinary seats and choose the posture seat when given a choice. It takes about two weeks of school use for a group of pupils to appreciate the comfort of this furniture.

3. The furniture has all the advantages of portable furniture and most of the advantages of fixed furniture, even in the portable forms.

4. The cost is about fifty percent more than for ordinary furniture but the installations are better made and should last longer. Other advantages more than compensate for this extra cost. Breakage seems to be minimal, even under rough usage.

5. It is possible to fit properly each normal child with seat and desk. In fact he can do most of the fitting himself, thus assuring almost immediate adjustment of classroom seats at the beginning of a term. By keeping several extra chairs in each room or immediately available in storage, it is possible at all times to have each child properly fitted with a correct desk and seat. This is possible but not probable with older types of school furniture.

6. The posture of children using these seats is undoubtedly better. The seat is so built that the child must sit properly or be uncomfortable. A further advantage of such a plan is that the teacher, who is interested in good posture for her pupils, does not need to urge good sitting posture constantly. The pupil is very comfortable when he sits in the chair properly.

7. It is possible for the pupil to turn his body on a vertical axis of 45 degrees in the seat and still be comfortable and maintain good posture. In one classroom observed the teacher sat in an ordinary chair and the pupils sat in posture chairs. The posture of the teacher was very much poorer than that of any pupil. The group did not know they were being observed.

8. The pupils maintain good posture easily, constantly, and without discomfort, either physical or mental.

9. The pupil may make any plus and minus adjustment at any time he chooses. By using domes of silence on the legs of the furniture, it is possible to move it about noiselessly, and with desk-tables, the plus and minus adjustment is made by moving the entire desk. The furniture is reasonably light in weight and is easily moved by any pupil.

10. When necessary, the furniture can be placed in rows according to the method now used with the fixed type of furniture.

11. Classroom restlessness seems to be at a minimum.

12. It is possible to conduct a classroom formally or informally when posture seating is supplied.

At present, normal individuals up to five feet ten inches in height can be fitted with posture seats.

Method of installation. Schools are surveyed and their needs estimated. The survey is made, frequently, by the physical director, using the plan devised by the manufacturers of the posture seats. Ten to 15 percent of extra chairs are needed to provide for growth and yearly turnover of pupils in a classroom.

The following form is used for requisition for the chair and desk of each pupil. The seating standard on this form is simple, clear, and correct.

Correct Sitting Posture

First, Feet flat on floor
Second, Knees at right angles
Third, No pressure beneath upper leg above the knee

Engineer's Requisition

Chair _____

_____

_____

Desk _____

Teacher _____

Student _____

FIG. 206*E*. Individual requisition for Earl Thompson posture furniture.

Scoring school seats and desks. An excellent form for this purpose is shown in Fig. 207,[1] page 467.

Items 22, 23 and 24 need no explanation.

This score card when used in scoring the classroom seats and desks in a schoolbuilding or a school system will give the following information for each classroom: (a) Total number of usable desks; (b) type of desks used; (c) rating as to specific details; (d) score on basis of 100; (e) total number of non-usable desks to be repaired or replaced.

Such data will enable the school administrator to check up more accurately and intelligently on his seating problem, and having the concrete facts in hand it will be possible to solve the problem and remedy conditions more expeditiously and efficiently.

The teacher's desk should be placed near the middle of the front end of the room facing the middle row of seats. This permits her to see all pupils with the greatest ease. She should not face a strong light.

Erasers and crayons. Crayons must be of the dustless type. Erasers should not be cleaned by the pupils and should not be cleaned in the school building unless by special vacuum apparatus or through use of vacuum cleaners when these are installed. Some believe a wire-mesh screen for

[1] Anderson, H. W.: Problem of School Supplies and Equipment, American School Board Journal, p. 47, July, 1924. Published by permission of the American School Board Journal.

TENTATIVE SCORE CARD FOR ELEMENTARY SCHOOL DESKS AND SEATS

Directions for Scoring: Score each classroom as a whole. First take Column "A". Then determine the type of desk or seat in the classroom. Indicate the score for the type by referring to the standard score (S) in the parentheses. Next take Column "B". These items are to be scored for all types. The figures in parentheses indicate score points for a perfect score. Deduct proportionally when the item scored falls below the standard. Fractional points may be used, and zero may be given in comparing the desks being scored with the standards. The maximum number of points for each column, A and B, is 50; thus the maximum score for the whole card is 100 points.

USABLE				Non-Usable	
A. Types of Desks and Seats	Score	B. Items	Score	Indicate in this column number of seats and desks for each classroom to be repaired or replaced; nature of repairs, etc.	
				Repair	Replace
I. *Fixed and non-adjustable, i.e., desks and seats are fastened to the floor and cannot be adjusted to the size of the pupils. Each classroom must have at least three sizes selected according to age group. Deduct 3 points if all seats are the same size. Deduct 2 points if less than 18 sq. ft. of floor space per pupil. (S 5.2)		1. Height of seat, 2/7 of height of child. Both feet to rest squarely on floor when pupil's back rests against back of seat. (S 4.8) 2. Corners rounded to prevent injury. (S 1.6) 3. Seat slightly hollowed to fit curve of body. (S. 1.9) 4. Seat wide enough to allow use of back rest without checking blood circulation under the knee. (S 2.4) 5. Seat tilted; front slightly higher for comfort. (S 1.6) 6. Top of back rest tipped back slightly. (S 1.5) 7. Back rest curved to fit the spine. (S 2.3) 8. Movable back rest for adolescent girls (like stenographer's typewriting chair). (S 2.0) 9. A solid back better than separate supports or spindles. (S 2.2) 10. "Minus" distance to be one and one-half inches. (S 1.6) 11. Desk height, front edge to end of breastbone, i.e., 3/7 height of child plus one inch. (S 2.6) 12. Slant of desk top adjustable (45 degrees for reading and 15 degrees for writing). (S 2.3) 13. Desk and seat on separate pedestals or supports. (S 2.1) 14. Ease with which janitor can clean floor around seats and desks. (S 1.9) 15. Freedom from noise; seats not to be hinged or swiveled; contact points protected by felt or rubber. (S 2.0) 16. Rhomboidal in shape: (Donovan type of desk). (S 1.5) 17. Simplicity of construction and operation. (S 2.2) 18. Durability; should be built to last a number of years. (S 2.4) 19. Finish. Surface should be dull so as not to reflect light. Dark brown color best for wood (S 2.5) 20. Inkwell. Right hand corner. Noiseless close-fitting lid. Well easily removed and cleaned (S 1.8) 21. Box for books. Should be inclosed but not a movable drawer. (S 1.7) 22. Sanitary. Must be easily cleaned and disinfected. (S 2.1) 23. Groove at top for pens and pencils. (S 1.3) 24. Slight ledge at lower extremity of desk so that books will not slide off adjustable top (S 1.1) Note: Deduct 5 points if scoring old desks that are cut, carved or marred, thus interfering with writing, or marring appearance Deduct 10 points if seats are double, i.e., for two pupils. Deduct 10 points if seats are double, i.e., for two pupils. Total number of usable desks in the room.....			
II. *Fixed and adjustable, i.e., desks and seats are fastened to the floor but can be adjusted to the size of the pupils. Should be adjusted to growth of children at least twice a year. Deduct 3 points if not adjusted at least twice a year. Deduct 2 points if less than 18 sq. ft. of floor space per pupil. (S 16.0)					
III. Movable and non-adjustable, i.e., desks and seats such as chair desks which are not fastened to the floor but which are not adjustable as to size. Each classroom must have at least three sizes selected according to age group. Deduct 3 points if all seats are same size. Deduct 2 points if less than 18 sq. ft. of floor space per pupil. (S 9.2)					
IV. Movable and adjustable, i.e., desks and seats not fastened to the floor and can be adjusted to the size of the pupils. Should be adjusted to growth of children at least twice a year. Deduct 3 points if not adjusted at least twice a year. Deduct 2 points if less than 18 sq. ft. of floor space per pupil. (S 19.6)					
Note: If both adjustable and non-adjustable seats are used in the same classroom, ⅔ should be non-adjustable and ⅓ adjustable (English Plan). In such cases, since there is more than one type, score each type as such but take only such fractional part of the score as the number of desks that type bear to the total number of desks in the room.		Maximum Score 50		Total number to be repaired	Total number to be replaced
		TOTAL SCORE Maximum Score 100			

*Includes plan whereby several desks are fastened to strips of wood. Part of row can be moved at one time. Are considered as fixed desks.

Remarks by Scorer:.....

.....

.....

.....

FIG. 207. Form for scoring school desks and seats.

erasers is desirable, since this permits a certain amount of chalk to drop from the eraser into a trough.

Blackboards. These should be of dull color. Black slate is probably the best material. In some instances it may be desirable to tilt the blackboard to eliminate glare. They should never be placed between windows. The height of blackboards depends on the height of the pupils using the room. Some believe that blackboards will eventually be replaced by large rolls of paper, portions of which rest on a flat surface and are available for writing with large crayons, or pencils.

Windows. The preferred directions for the source of natural light are in this order—southeast, east, southwest, west. Windows should be arranged so that the light will reach the pupils from the left and behind, and should

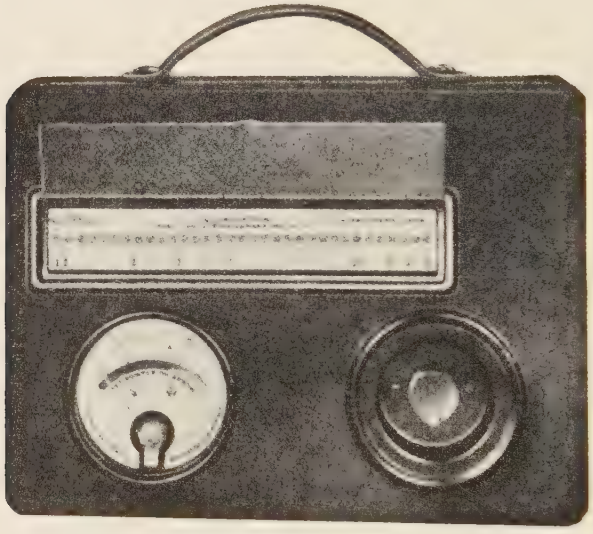


FIG. 208. Foot-candle meter for measuring illumination. (Courtesy of Eye Sight Conservation Council of America.)

be on one side of the room only, whenever possible. Quadrant lighting is far less desirable. Windows should have their sills built at the level of the pupil's waist lines when the pupils are seated and should extend as near to the ceiling as building construction will permit. As much window space as possible and practicable is needed. The window glass area should never be less than twenty percent of the floor space.

Pivot hung windows afford better ventilation and make it possible to convert a classroom into what is almost an open-air room.[1]

Shades should be of light translucent material since their object is not absolutely to shut out the direct rays of the sun but to diffuse too bright

[1] See note by Frank Irving Cooper on p. 484.

light; to prevent glare, shadows, and sharp contrasts. The best fixture is one consisting of a single roller which is adjustable and slides on rods in such a manner that the shade may be placed over any portion of the window which

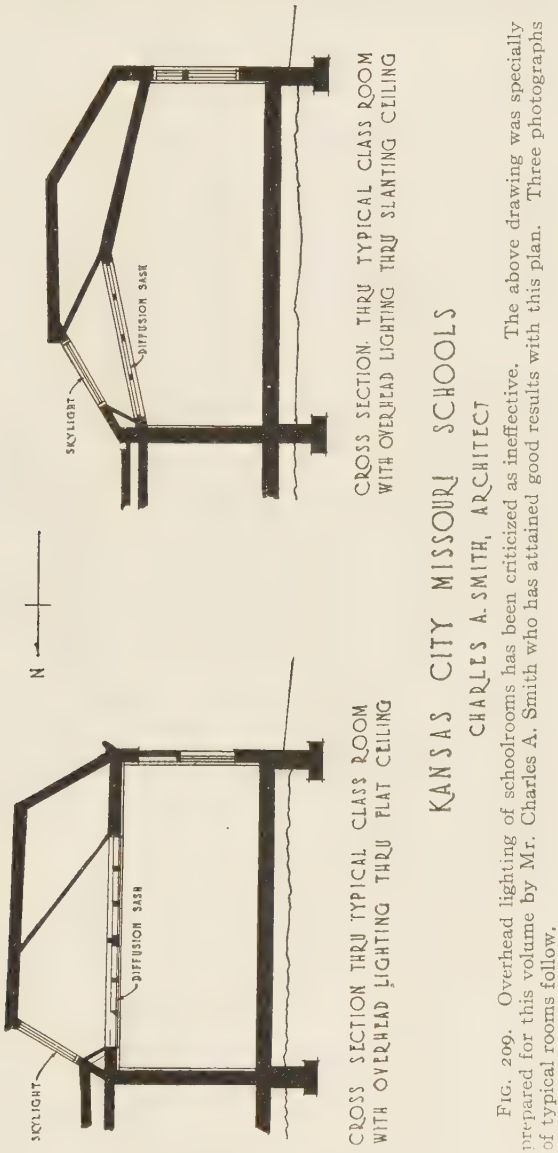


FIG. 209. Overhead lighting of schoolrooms has been criticized as ineffective. The above drawing was specially prepared for this volume by Mr. Charles A. Smith who has attained good results with this plan. Three photographs of typical rooms follow.

is desired. Shades which are pulled up from the bottom of the window, rather than down from the top, wear out more rapidly.

Artificial lighting. Several types are common when electricity is used. Where gas is used the methods used for electric lighting can be approximated.

1. *Direct light, with or without shade.* If a shade is used, it should be opaque. Such a method of illumination is economical but the light is hard, glaring, and most conducive to eyestrain; at least half the light is delivered below the horizontal. Fixtures may be open, bottomed, enclosed or semi-enclosed. The closed type is satisfactory when a good diffusing glass is used in the luminaire.

2. *Indirect light.* There are several types. The bowl is placed beneath the light, is opaque, and the light is thrown on the ceiling where it is diffused.

FIG. 210. Overhead lighting. Slanting-ceiling. Typical classroom for one story building. Kansas City, Missouri. (Chas. A. Smith, Architect.) Note excellence of lighting.

This gives the softest light but is the most expensive. The bowl requires frequent cleaning because it catches dust. All the light reaches the work after reflection from the ceiling and walls.

3. *Semi-indirect.* A translucent bowl is used with this type of luminaire, resulting in a soft light, diffused through the bowl and by the ceiling as well. Bowls may be open or closed. The closed type is preferable as it does not catch dust. More than half the light is directed to the ceiling and upper walls and then reflected.

(A.) Open fixture has the disadvantage of catching dust and requiring frequent cleaning. If not cleaned the amount of light is not up to the standard.

(B.) Closed fixtures are most advantageous since they require less cleaning and catch little dust. They have all the advantages and none of the disadvantages of other plans. For practical purposes they represent the best

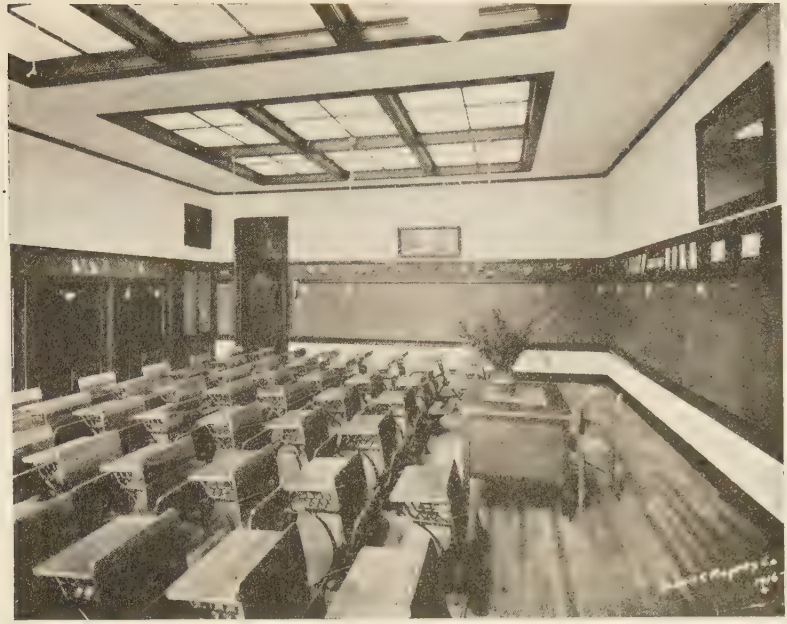


FIG. 211. Overhead lighting. Flat ceiling. Typical classroom for one story building. Kansas City, Missouri. Note quality of lighting. (Chas. A. Smith, Architect.)

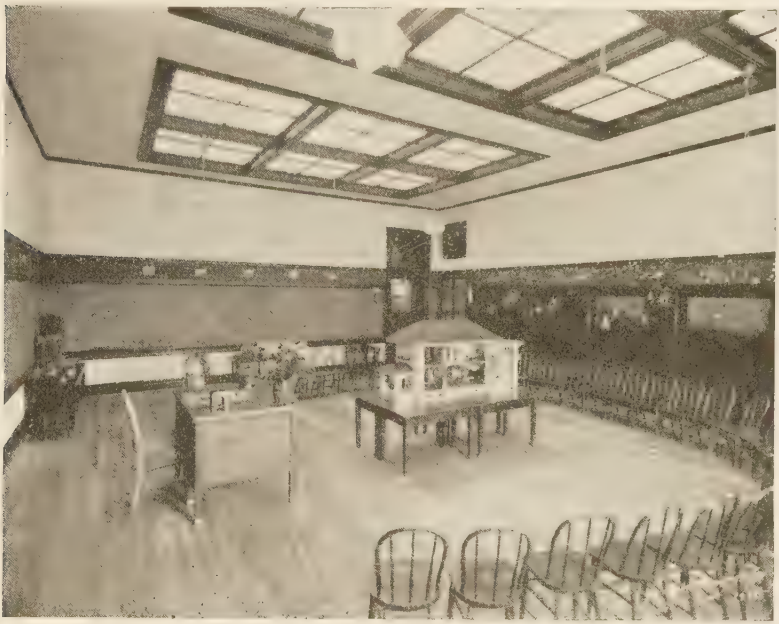


FIG. 212. Overhead lighting. Flat ceiling. Kindergarten. Mark Twain one story building. Kansas City, Missouri. Note excellent illumination. (Chas. A. Smith, Architect.)

system, considering care of the eye-sight, economy of cost and of electricity maintenance.

Illumination required. The following table is from the Revised Code of Lighting School Buildings of the American Engineering Standards Committee (1924).

	Minimum required foot candles	Recommended foot candles
On the space:[1]		
Walks, drives and other outdoor areas, if used at night	0.1	0.5
Playgrounds, outdoor, if used at night	0.5	2
Playgrounds, outdoor, if used at night for baseball, basketball, etc.	5	10
Storage spaces, passages not used by pupils	0.25	2
Boiler rooms, power plants, and similar auxiliary spaces	1	3
Stairways, landings, corridors, aisles, exits, elevator cars, washrooms, toilets, locker spaces, dressing rooms	1	3
Recreation rooms, gymnasiums, swimming pools	3	7
On the work:[2]		
Auditoriums, assembly rooms	2	3
Auditoriums, assembly rooms, etc. if used for class or study purposes	5	10
Classrooms, study rooms (desk tops)	5	10
Classrooms, study rooms (charts, blackboards)	3	6
Libraries (reading tables, catalogues)	5	10
Libraries (bookshelves, vertical plane)	3	6
Laboratories (tables, apparatus)	5	10
Manual training rooms, workshops, etc	5	10
Drafting rooms, sewing	8	15

[1] This report contains a detailed description of methods and standards for natural and artificial lighting. A popular edition is available from the National Committee for the Prevention of Blindness, New York City.

[2] Where the space or work is not clearly evident the illumination may be measured on a horizontal plane 30 inches above the floor. Such a case is an auditorium. However, where the space or work is clearly evident, such as stair-steps and desk-tops, the illumination shall be measured on the plane of the steps and desk-tops respectively. Inspection and cleaning of luminaires and renewal of burnt out bulbs should be done frequently and regularly.

Cross lights. The careless use of shades and a combination of natural and artificial light is a productive cause for eyestrain and every classroom teacher should have a careful demonstration of how glare, shadows and sharp contrasts result from careless use of adequate lighting provisions.

Special methods of natural lighting. 1 In some single-story schools, overhead lighting of the sawtooth or sky-light type has often proved very unsatisfactory. Whether this is due to poor handling of the problem or whether the plan is impracticable is yet to be determined. The saw-tooth plan seems to work well in factories. Kansas City, Mo. has a satisfactory system of overhead lighting used in one story school buildings. Nothing has ever been published about the plan previously. See Fig. 209-212 inclusive.

2. A report entitled "Daylight in the Schoolroom"[1] contains interesting suggestions in regard to overhead lighting, derived from an experiment in two small one room school buildings in Pueblo, Colo., under the direction of Dr. R. W. Corwin of that city where the rooms were excellently illuminated by the following scheme, which permitted teacher or pupil to stand in any part of the room and look in any direction without encountering the slightest unpleasant glare, and with adequate light upon everything to be looked at. Except for the door space, and the small windows placed low, to look out from, every foot of wall space below the main windows is available for blackboards and charts, which are better lighted than is possible for most school rooms. The rooms are 29 by 39 feet with 13 foot ceiling. Close to the ceiling, 4 feet of wall space on three sides is utilized for windows, each of which is hung like a transom, so that it can be opened for ventilation. On the two sides where the direct sunlight can fall on the windows a part of the day, the glass is frosted; on the north side, it is left clear. The frosted glass cuts down the illumination somewhat on cloudy days, and to this extent it is inferior to light shades that could be drawn out of the way when the sun is not shining. Conceivably some mechanical arrangement for substituting plain glass under such conditions would remove this objection.

The same report mentions the fact that the weakest point in the utilizing of daylight for the school room is in the failure to light the ceiling, whence the light could be diffused in the normal direction downward upon the scholar's work. This can be done only by reflection. A highly polished inside shutter, placed horizontally can be used to reflect light on to the ceiling, and at the same time prevent it from falling on the floor, where it tends to dazzle the eyes directed downward in performing school tasks. Such a shutter should be fastened in place with a hinge that will allow it to be inclined at different angles to meet the differences in the inclinations of the sun's rays at different times in the year. It should extend beyond the sides of the window so as to catch light that would reach the floor when the sun falls obliquely from the right or left of the window. When the light is admitted through a series of windows placed close together, the shutter should be continuous across the whole series. It should generally be about as wide as the distance it is placed below the top of the window, 2 or 3 feet. More than one shutter can be used, placed at different heights before the window, in which case the width should equal the interval between them. Such horizontal shutters will be useful chiefly on windows that receive the direct light from the sun during school hours. For buildings so placed that it is impossible to get sufficient clear sky space to furnish light through a lateral window, a reflecting shutter, placed outside the window so as to reflect light from the sky above upon the ceiling, may be the only practical method of illumination. Such a shutter may be made of milk glass or frosted or fluted glass. It should be hinged like an inside horizontal shutter,

[1] Subcommittee on Conservation of Vision and Lighting in Schools, Joint Committee on Health Problems in Education, of the National Education Association and the American Medical Association. J. A. M. A., June 18, 1921, Vol. 76, pp. 1785–1787.

to adjust to different angles; especially if the exposure is one where the direction of strong light will vary at different hours of the day.

This report, in conclusion, offers the following *essentials for illumination:*

"1. The selection of a site and plans such that neighboring trees or buildings shall in no case rise more than 15 degrees above the horizontal plane of the bottom of the windows. Large trees, so close to the walls that they can be trimmed up to clear an angle of 60 degrees with the horizon, may be permitted in warm climates where it is important to keep down heat.

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE DEPARTMENT OF EDUCATION
SCHOOL HEALTH SERVICE

RULES FOR CARE AND USE OF THE EYES

While reading let plenty of light—from the left—shine on your book. If left-handed, let light shine from the right while writing.

Dim light and glaring light make the eyes tired and weak. Use light that is agreeable to the eyes.

Avoid fine print, blurred letters, and shiny paper; they are sure to strain the eyes.

Sit erect and place your book or paper about 12 to 15 inches from the eyes.

Be sure to consult your doctor if you have headache, dizziness or a tired feeling; they may come from eyestrain.

Rest your eyes when tired. Do not strain them.

Let the doctor treat your eyes. You can not do it yourself.

If the doctor tells you to wear glasses, wear them.

Paste this slip on inside cover of textbook.

N. Y. State Form to paste inside test books.

2. Placing the windows high enough to permit light from them to fall at an angle of from 15 to 40 degrees in the part of the room most distant from them, shutting off all glare of light below 15 degrees, and placing such windows on all available sides of the room, and especially to the south, where the most light is obtainable.

3. Controlling direct sunlight by light shades that will intercept and diffuse it, drawn out of the way, when not needed for this purpose; placing all dark shades at the bottom of the window, and drawing them up only as needed to raise the level below which glare is excluded from the eyes. Using polished shutters that swing on a horizontal axis to reflect light on the ceiling when obstructions to clear sky render this help necessary."

WATER SUPPLY

Purity and adequacy are essential. If there is any question regarding the purity, bacteriological examination must be made and steps taken to rectify any trouble which is discovered. It may be desirable to have the water tested periodically, especially in rural districts where this may not be done by other authorities. When wells are used the water shed and location of the well must preclude the possibility of surface drainage or contamination.

In progressive states, the administrative officer of any school may have the water analyzed by the State Board of Health, and such analysis should be made unless county or city health officers can guarantee the safety of the water supply of the schools.

Drinking facilities. One fountain should be supplied for every 50 to 70 pupils. The children's mouths should not come in contact with the outlet. The stream should come from the side of the bubbler. Fountains should never be located in the toilet rooms. They should be located in corridors with provision for easy use by small children. The fountains should be kept in correct adjustment and this means frequent inspection. Individual drinking cups should be provided where "bubblers" are not installed. Children can make these by folding sheets of paper. The common drinking cup is not to be tolerated.

In rural schools, pure water supply plus a sanitary cooler and individual drinking cups meet the needs. The top of the cooler must not be left open nor should the water usually come in direct contact with the ice, unless the purity of the ice is assured. Furthermore, cool water, not ice water is desired. Recently a sanitary bubbler has been devised for use in rural schools. Blue-prints may be borrowed from Hygeia, 535 North Dearborn St., Chicago, Ill.

Washing facilities. Both hot and cold water should be provided always. In some sections the school will be the only place the child will be able to have hot water for washing.

Washbowls should be adapted to the height of the children using them. One washbowl should be provided for every 15 to 20 children.

Paper towels of an inexpensive type, and liquid or powdered soap are needed. Cheap tissue paper towels 12″ × 18″ are very satisfactory and inexpensive, costing about five cents per year per pupil, allowing one quarter ream per year. The best soap fixture is the tank type for liquid soap where the soap is kept in a large tank which has outlets at each wash basin. The trouble with most fixtures is that the children easily put them out of order or break them. *The dirty, common cake of soap is taboo.*

If children are expected to learn to wash their hands at school before eating, after getting them dirty or after going to the toilet, suitable facilities, kept spotlessly clean, must be provided at the school.

TOILETS

The toilets for boys and girls must be entirely separate and the entrances removed as far as possible from each other. They should not communicate

in any way and walls between should be soundproof. Most authorities now believe that toilets and lavatories should be placed on the same floor as the pupils, never in the basement. The question of toilets for teachers has been discussed.

Wherever the toilets are placed, they must be exposed to sunlight part of the day. The toilet room must be airy and must have a separate duct in the ventilating system. Otherwise odors reach other floors of the buildings.

Windows must be translucent. Walls must be of a type which permit frequent washing. Floors should be of asphaltum on a cement foundation and drained properly, to permit daily flushing.

In rural districts particular attention must be paid to rain-proofing and fly-proofing toilets, and cleaning them frequently. They must be kept odorless, the method depending on whether an earth closet, septic tank system, water tight vault or box, or what other type is used. Individual flush closets should be installed as soon as possible.

Toilets and privies should be sanitary in location, construction and maintenance.

If there is no water carriage system, separate privies should be located at least 50 feet in the different directions from the school-house, with the entrance well screened.

All containers of excreta should be water-tight, thoroughly screened against insects and easily cleaned at frequent intervals.

No cesspool should be used unless it is water-tight and easily emptied and cleaned.

All excreta should be either burned, buried, treated by subsoil drainage, reduced by septic tank treatment or properly distributed on tilled land as fertilizer.

Individual flush closets should replace the trench system. Children must be taught to flush closets after use or else an automatic system of flushing must be installed. For individual flushing, the chain pull is simplest, most easily repaired, and approximates most nearly what the child will probably have at home.

A comparison of automatic and individual flushing of closets disclosed the following points:

Automatic. Assures regular flushing, whether the child is careless or not. But:

a. It often frightens the child or at least makes the child uncomfortable when it flushes when the child is using the seat. The child may refuse to use the toilet as a result.

b. In order to save water, the flushing device is apt to be set for too infrequent an interval. The result is that a child may meet a very objectionable situation.

Individual. (1) The children do not flush the closets, unless the janitor watches them constantly. This is a matter for instruction at home and school. Furthermore, proper use of the toilet may properly be part of health education.

2. The situation more nearly approaches the home situation.

3. The pull may get out of order frequently but it is the business of the janitor to attend to just such matters and such time consumed in a repair of a closet is small.

Standards. One toilet seat for every 15 girls. One toilet seat for every 25 boys. One urinal for every 15 boys.

Fixtures. Toilets should be porcelain of the open type with individual flush. The type of seat varies. While dark colored toilet seats are often installed in school toilet rooms, some authorities object to dark seats, because, in schools where some pupils are careless about keeping the toilet seats clean, the dark colored seat may be productive of unpleasant situations especially if the stalls are lighted dimly. Doors to stalls should swing out. Partitions should never be of wood; porcelain, marble or glass may be used. Urinals should be of porcelain, marble or glass. The slate foot rest commonly used, as well as the cement type, eventually absorb and give off odors even if carefully and frequently washed. Under inadequate cleaning they become very malodorous.

Care of the toilets and urinals. Both must be kept scrupulously clean and odorless. This means careful watching on the part of the janitor and matron and strict discipline in the school in regard to carelessness in use of the toilets.

Strong-odored disinfectants and cleaning solutions should not be used, not because they are bad in themselves, but because careless employees find the odor of the disinfectant, liberally used, readily masks other odors, especially from the urinals, and are thus able to "get by" with careless work.

HEATING AND VENTILATION

Ventilation and heating must be considered together. The essential requirements to be met by proper heating and ventilation are very simply stated as follows:

1. The temperature should not be above 68°F., when the outdoor air is cooler than this.

2. There should be sufficient movement of air to provide good circulation without cold drafts.

3. The air should be clean and free from all avoidable dust and unpleasant gases or odors, either from nearby industries or from unclean bodies and clothing of pupils.

4. Slight changes of temperature, even of one to three degrees, provide a useful tonic effect upon the body.

5. The air should have as much of the outdoor quality as possible in the classroom.

Benefits of good ventilation. (1) The teacher and pupils are in better health and less susceptible to communicable diseases, especially colds and sore throats.

2. More and better work can be done by both teacher and pupils and they are less fatigued by the work they do.

3. Cases of preventable illness are decreased in number, and attendance is improved thereby.

In other words, because very healthful conditions are thus made possible in the classroom, better health and better growth of mind and body result. Only under such favorable conditions is it possible for the:

1. Pupils to obtain the best results from education.
2. Teachers to work with maximum efficiency.

Methods of heating and ventilation. Nine possible methods of ventilation exist:

1. Window air supply with window or no exhaust;
2. Window air supply with gravity exhaust;
3. Window air supply with fan exhaust;
4. Gravity air supply with window or no exhaust;
5. Gravity air supply with gravity exhaust;
6. Gravity air supply with fan exhaust;
7. Fan air supply with window or no exhaust;
8. Fan air supply with gravity exhaust;
9. Fan air supply with fan exhaust;

Another classification is: (1) The *open window* plus some means of bringing heat into the room.

2. *Artificial systems.* (*a*) Gravity. As the radiator heats the air in a room, it causes fresh air from the outside to come through an opening in the wall, near the radiator, and as the warm air is lighter than the cold air, this warm air rises to the ceiling.

As the air cools and becomes heavier, it drops to the floor and is then supposed to pass out through a duct located near the floor at the other end of the room. This method can not be controlled. Since this method belongs to the "Exhaust" system group, all leakage is into the ventilated room and thorough diffusion is impossible.

(*b*) Plenum system. In plenum or pressure systems the air is taken from the outside and pushed into the room, this being exactly the opposite of the "exhaust" system, where the exhausting is done by gravity or by an exhaust fan.

3. The *window-gravity system*, now advocated by the Joint Committee on Health Problems in Education in "Ventilation of School Buildings," 1925.

The exhaust system is not advocated by authorities today because of such objectionable features as bringing in all odors from other rooms and causing cold drafts from the windows. In the plenum system, since a pressure condition is created within the room (the pressure being theoretically greater than the atmospheric pressure outside the building), the foul air leaves the room through openings provided for the purpose.

Of plenum systems, the first was the central fan duct system where a large fan, usually in the basement, blew air over hot furnaces or radiators, up through ducts and flues, to various rooms to provide heat and ventilation. Difficulties arose from the resistance offered by the ducts or flues and through uneven distribution. Rooms exposed to cold winds were often hard to heat because wind pressure is much greater than fan pressure. Furthermore the windows in any one room could not be opened without affecting the ventilation in other rooms.

The "split" system uses the central fan part of the system for supplying fresh warm air for ventilating purposes only. Direct radiators are placed along the outer walls for heating. This system provides improved heating but not better ventilation. It consists of:

(*a*) Direct radiators in classrooms sufficient for all heat requirements;

(*b*) Fans, or blowers, and indirect radiation in the basement for supplying tempered air to the classrooms for ventilation;

(*c*) The trunk duct system of air supply;

(*d*) Gravity exhaust flues for removing the air from classrooms;

(*e*) Automatic temperature regulation to keep the temperature at 68°F. to 70°F.

The manufacturers of a new system now on the market claim that it is possible, through their installations, to avoid all these objections, by means of an individual unit in each room which takes the air directly from outside the room window. Part of the air enters the room unheated and part enters after passing over heating coils, a fan being used to drive most of the air down over the radiator. This plan is said to result in (1) excellent diffusion, so that each room may have windows open when desired, and (2) power to meet any special idiosyncracies of the room such as exposure to cold winds. Such a unit system is really a split system.

Report of the New York State Commission on Ventilation

Working under a special grant, this Commission, headed by Winslow and consisting of eminent scientists and educators, made careful studies in selected schools distinctly representative in type, and reached certain conclusions in regard to school ventilation.

1. The physiological and psychological effect of various air conditions. The Commission found the following: Ordinary effects of stale air have nothing to do with oxygen or carbon dioxide content, but vitiated air has a distinct influence upon appetite and the inclination to physical work. Such a condition was noted, however, only under somewhat extreme conditions of vitiation with a carbon dioxide content of 20 parts or more per 10,000, corresponding to an air change in the neighborhood of 6 cubic feet per person per minute or less.

2. The factors in ventilation which produce bad effects are overheating, excess of humidity and lack of air movement.

3. Comparatively slight degrees of overheating produce derangements in the circulatory system of the body, work to a marked degree against efficiency, and exert an important influence in promoting susceptibility to respiratory infection.

Four methods of ventilation were studied and compared:

1. Rooms ventilated entirely through the use of windows.

2. Rooms to which fresh air was admitted by windows and from which vitiated air was removed by gravity exhaust ducts.

3. Rooms ventilated by means of fans to force air into the rooms, supplemented by a gravity exhaust duct through which air might find its own way out.

4. Rooms ventilated by means of fans both for forcing air into the rooms, through special ducts, and for exhausting it from the rooms; the same air being supplied to the room over and over again, after being reconditioned before recirculation.

Type four brought out the fact that the air washing which was necessary in the recirculating system failed to remove odors. In the experience of others, it has not shown enough extra value to warrant the additional cost of installation and operation.

Type three failed to prove as satisfactory as the rooms with window ventilation and gravity exhaust.

Winslow, in summarizing the Commission's report, makes the following statement: "The Commission points out that the nature and environment of the enclosure to be ventilated dictate the method of ventilation to be used, and that what is adequate for one type of building may be inadequate for another. Theatres and auditoriums, for example, must generally rely on fan systems. Window ventilation would prove inadequate for a school which is overcrowded and in a noisy and insanitary district. It is possible that fan ventilation in the schoolroom may be robbed of its disadvantages by decreasing the amount of air supply with a corresponding lowering of temperature, approximating more closely the conditions contained in window ventilated rooms. In general, however, it seems clear, from the results of the studies here reported, that window ventilation with gravity exhaust will often furnish the ordinary schoolroom with a system of ventilation which is more economical, more comfortable, and more healthful than the ordinary system of forced ventilation."

The rural schoolroom may and should always receive fresh air coming directly from out of doors in one of the following arrangements:

(*a*) Through wide open windows in mild weather.

(*b*) Through window board ventilators under all conditions, except when, with furnace or jacketed stove (as in rural schools), special and adequate inlets and exits for air are provided. The window-gravity system is of this type.

Heating. Unless a furnace or some other basement system of heating is installed, at least a properly jacketed stove is required, as in rural schools. (No unjacketed stove should be tolerated in any school and in many states such a stove is forbidden by law.)

The jacketed stove should have a direct fresh air inlet about 12 inches square, opening through the wall of the schoolhouse into the jacket against the middle or hottest part of the stove. The exit for foul air should be through an opening at least 16 inches square on the wall near the floor, on the same side of the room as the stove is located.

A fireplace with flue adjoining the stove chimney makes a good exit for bad air.

McLure's study of ventilation of school buildings[1] in 96 cities in 31 states resulted in the following conclusions:

[1] McLure J. H.: Ventilation of School Buildings, Bureau of Publications, Teachers College, New York, N. Y., 1924.

"1. The recognized standard for schoolroom ventilation has been, for many years, that of 30 cubic feet of fresh air per minute per pupil. This standard is embodied in the laws of 21 states, being found in the statues of 9 states and in board regulations having the force of law in the other 12 states.

Note. Since the window gravity system cannot meet this standard, such laws should be revised to make the new systems legal.

2. The installation of mechanical or fan ventilation is the established practice in the great majority of these cities.

3. The theory upon which mechanical ventilation is based is, mainly, that the health and comfort of pupils demand the constant uniform movement of large quantities of fresh air through the room. The amount of air needed was originally considered by leading advocates to be 50 cubic feet per minute, but for several decades 30 cubic feet has been designated as the desirable amount. The demand for such quantities of fresh air is based, chiefly, on the belief that the discomfort and harm often experienced in poorly ventilated rooms were due to poisonous or injurious substances in expired air.

4. Experimental research over several decades has failed to confirm the theory that expired air, in rooms ordinarily occupied, contains poisonous or injurious substances or that it is the cause of the discomfort usually experienced in such rooms. It has been shown repeatedly that the factors of major importance in ventilation are the physical properties of air, namely temperature, relative humidity, and air movement. The results of research show that temperature is the most important factor in ventilation and that the overheating of rooms—not the chemical composition of expired air—is the usual cause of discomfort and harm.

5. On the basis of the evidence found, mechanical ventilation cannot be regarded as essential for schoolrooms unless they are located in noisy, dusty, or odorous surroundings, or in case of other special conditions.

6. Schoolroom ventilation by means of windows and gravity exhaust flues has been found to be entirely satisfactory by those who report its use in school buildings located in various geographical sections of the United States. The New York State Commission on Ventilation recommended this method as the most generally promising after making comparative tests with plenum fan ventilation.

7. The evidence, on designs and operation of systems of mechanical ventilation, secured in this investigation is unfavorable to mechanical ventilation for the following reasons.

(*a*) The typical design of mechanical ventilation is such that windows must be kept closed while the system is in operation. The nature of this design often leads to the over-heating of certain rooms, even with automatic temperature regulation systems. In order to secure relief in these rooms, the windows are thrown up. These open windows upset conditions in other rooms or the system as a whole. The complaints and troubles incident to this situation often result in the closing down of the ventilation system.

(*b*) In the majority of cities, systems of mechanical ventilation are not operated outside of the heating season. In many instances the fans of split systems are not operated during the heating season except on certain days when the direct radiators in the rooms cannot supply the required heat, or for rapid heating in the morning. In some instances, the ventilation systems are not operated at all and have not been for several years. One important reason why ventilation systems are allowed to remain idle, part or all of the time, is the high cost of operation. Competent engineers have found that for every four pounds of coal burned, only one goes to the heating of the building; while three are required to operate the ventilation system on the basis of 30 cubic feet of air per minute per pupil.

(*c*) The facts indicate that so-called ventilation systems, of all kinds, are conceived of largely as heating systems rather than ventilation systems, as far as the policy of operation is concerned.

(*d*) A detailed analysis of the costs of various items in a split system of heating and ventilation, shows that the ventilation equipment alone cost from 40 to 50 percent of the total amount of the contract.

(*e*) The evidence produced in this study indicates that there are millions of dollars invested in idle and semi-idle mechanical ventilation equipment in school buildings in certain cities of the United States.

8. On the basis of experimental data, the claims of mechanical ventilation for schools and hospitals were seriously challenged by 1913. With the discrediting of some of the theories in large measure responsible for the establishment of mechanical ventilation as the standard method of ventilating the schoolroom and with the growth of knowledge of the physiological aspects of ventilation as a background, the mounting cost of fuel, operation and maintenance during recent years served to increase the number of idle plenum fans and brought about a most serious practical challenge to the position of mechanical ventilation."

Open Window Heating and Ventilation[1]

"This system heats the schoolroom by radiation placed directly under the window and ventilates by slightly opening the windows at the bottom, allowing the introduction of fresh air which, mingling with the rising column of hot air from the radiators, is warmed and diffused about the room, finally passing out through vent ducts, openings to which are placed near the ceiling in the wall opposite the windows.

"A style of radiator should be used that will allow free movement of air. The top of the radiators should be just below the sill of windows. Extending the entire width of the windows at the sill line should be a steam supply pipe

[1] Cooper, Frank Irving: Journal of Education, Vol. CI, No. 25, pp. 701–702, June 18, 1925, reprinted by permission.

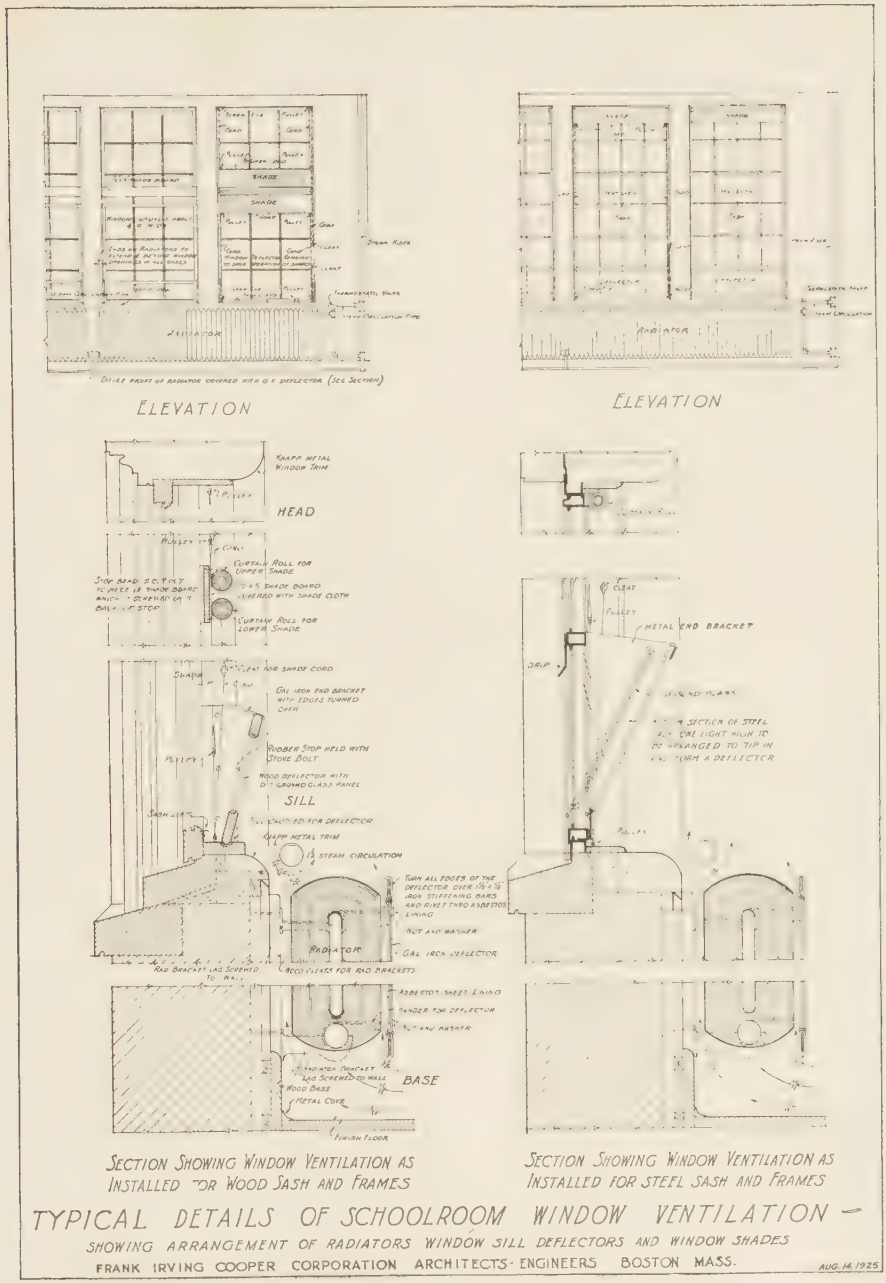

ELEVATION
ELEVATION
HEAD
SILL
BASE
RADIATOR
SECTION SHOWING WINDOW VENTILATION AS INSTALLED FOR WOOD SASH AND FRAMES
SECTION SHOWING WINDOW VENTILATION AS INSTALLED FOR STEEL SASH AND FRAMES
TYPICAL DETAILS OF SCHOOLROOM WINDOW VENTILATION
SHOWING ARRANGEMENT OF RADIATORS WINDOW SILL DEFLECTORS AND WINDOW SHADES
FRANK IRVING COOPER CORPORATION ARCHITECTS-ENGINEERS BOSTON MASS.
AUG. 14, 1925

FIG. 213. Specially prepared for this book by the Frank Irving Cooper Corporation, Boston, Mass., whose success with the window gravity plan has been marked.

that should not be closed off. This is to give force to the upward column of air when steam is turned off radiators. The radiators should extend past both sides of the windows so that no cold air can drop down at the corners.

"Window sills should be even with the wall so as not to interfere with the upward flow of air.

"If hand valves are used they should be of the modulating type and the connections should be made to the top of the radiator.

"Automatic control valves relieve the teacher of the duty of operating valves and should be used whenever possible.

"To protect the children in the first row of seats next the outside aisle the radiators should have a protecting screen made of corrugated iron and asbestos. This screen should set out one inch from the radiator, cover its entire width, extend to the top and down to the bottom of the radiator.

"The windows[1] should have deflectors placed at the bottom so that the incoming air will be forced to take an upward movement which is accelerated by the column of hot air rising from the radiators. This column of hot air acts as a shield protecting the children from cold draughts. The incoming cold air will mingle with this column of hot air before it distributes itself.

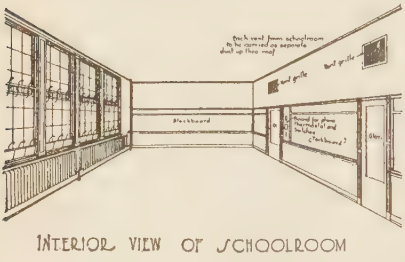


FIG. 214. Window gravity system. Note exhaust ducts in upper wall on right.

"Smoke tests show that the incoming cool air is forced to take an upward movement by the deflector; it mingles with the rising column of hot air from the radiators and begins a circling movement extending nearly up to the ceiling and rolls back across the entire room, causing a general circulation of the air throughout the room.

"There should preferably be two exhaust openings in the wall opposite the windows at or near the ceiling and placed as far apart as possible. The openings should have adjusting dampers to control the flow of air and for closing when rooms are not in use. It is advisable to omit the usual wire screen so that the position of the damper may be seen at a glance.

"It is essential for the successful working of this system that the radiators be correctly placed; that they be of the right type and of ample size; that the exhaust ducts be of correct size; the vent openings be located properly and be of ample size; and that the ducts are so run that air movement will not be impeded.

"The right working of the system depends in a large measure on a positive exhaust of air from the room and when this cannot be obtained by natural means, steam coils or exhaust fans should be installed to insure the proper

[1] "In using windows of the so-called Fenestra or of the Lupton manufacture both of these concerns have arranged a ventilating unit in the bottom of their sash which takes the place of the separate window board but the principle of the deflector and its control of air currents is the same as where the separate board is used." Frank Irving Cooper, Personal Communication.

movement of air in the exhaust ducts. A positive exhaust will usually overcome an insufficient natural inflow of air through the raised windows, and relieve the teacher of more than casual attention to their position. Without a positive exhaust the amount that the window sash is raised has to be left to the judgment of the teacher.

"When this open window system is installed[1] the window shades should be kept taut by cords attached to both sides of the shade and fastened by suitable attachment, the shades always being under tension; otherwise, they are liable to rattle.

"The Wheeler system, when properly installed with ample radiation, controlled by automatic valves and a positive exhaust, may be depended upon to give a schoolroom atmosphere far superior to that obtained by the usual basement heaters and the elaborate heating systems of the so-called downward systems of ventilation."

The Teacher's Duties in Securing Good Ventilation for Her Classroom

If the heating and ventilation system is a *mechanical* one, she is permitted to make no adjustments herself, but should report unsatisfactory heating and ventilation to the person designated by the school authorities.

But, if the *window ventilation system*, described above, is used, the teacher may *make necessary adjustments of heat and air supply*. This is not difficult to do.

Regardless of the type of ventilation provided, the teacher ought to:

1. Observe the room thermometer about every half hour (and it should be placed where she can read it at a glance. If the thermometer reads less than 66° F. or more than 68° F., more (or less) heat is needed, except(*a*) when hot weather is the cause, or (*b*) just after the room has been thoroughly aired, in cold weather.

2. Study the pupils' behavior to determine their response to present air supply. Yawning or other signs of being tired or indifferent to work probably mean improper ventilation and heating.

3. Whenever conditions do not meet the standards of a satisfactory air supply, report the situation (in mechanical systems) as directed; or (in window ventilation systems) make the proper adjustments of the heat or the cold air supply by increasing or decreasing the amount of heat or the amount of air, or both.

4. When requested, keep careful room temperature reports. Explain these to the pupils and teach them how to keep such records.

5. Interest pupils in classroom ventilation as a project of practical value to the school and to the home, if pupils are old enough to understand the fundamentals of ventilation.

[1] Installations, under the direction of the Frank Irving Cooper Corporation, have been completed recently in the High School at Thompsonville, Conn., the High School at Stratford, Conn., and the very large Weaver High School in Hartford, Conn.

Standards for Heating and Ventilation

In most states, by statute each pupil must have 30 cubic feet of air per minute available. Exception should be made if the window-gravity method is used. There should be a thermometer in every room.

The National Child Health Council recommends the following:

"The air in the school building is to be warmed to a point between 65 and 68 degrees, air should be clean, moist (50 to 80 percent saturation), constantly moving, and constantly changing slightly in temperature. A wet bulb reading of 56°F. is a good standard. If hot air, steam, or hot water heat is not available in old buildings and stoves are used, care should be taken to see that they are jacketed and that flues are provided which connect with the chimney to carry off waste materials. This is especially important with gas stoves."

Humidity. High humidity accentuates the discomfort of high temperature. It is not so evident that low humidity is objectionable. During the experiments by the Ventilation Commission the comparison of two groups of pupils showed that in comparing a "dry room" with a moist; "as moist as the comfort of the occupants would allow," the pupils in the former room improved in certain cases of obstructed breathing; improved in nutrition; showed greater gain in weight per pupil; showed half the number of cases of respiratory affection as compared with the moist room, both rooms being kept at the same temperature. Yet in the dry room odors were noticeable only twice, while they were commonly noted in the moist room.

Records. *Heating.* Simple room temperature charts are inexpensive and are kept by the teacher in the lower grades; in the upper grades they are used as a teaching project. Some types have spaces for recording the room temperature several times a day; other types of charts resemble the clinical temperature chart and room curves are plotted.

Directions for use of charts. (1) Take temperatures at definite times, at least twice a day. Take other special temperatures as indicated. Charts should be turned into the principal's office each month on completion. They form a fairly accurate estimate of the efficiency or the efficient management of the school heating system. (2) Humidity is not recorded on these charts. (3) Place thermometer on the teacher's desk or in center of the room, not near windows or radiator.

Humidity. This is taken with the sling psychrometer, a special instrument which should be used by the experienced only, if accurate findings are to be expected. It is not practicable for use by the teacher, unless she is specially trained. The expense would not permit each room to have one, nor is it necessary.

Air-washers. These offer no special advantage in most schools and will not be considered here.

Synthetic air chart. Room test. Under each item on the front side, are three columns:

TEST DATA

STREET Nº _____ DATE _____

BLDG. _____ ROOM _____ FLOOR _____ TIME _____ TO _____

STATION	TEMPERATURE		R.H.%	AIR MOTION	DUST	BACTERIA	ODORS	CO_2	SUPPLY REGISTERS			EXHAUST REGISTERS		
	DRY BULB	WET BULB							AREA ☐'	VELOCITY	C.F.M.	AREA ☐'	VELOCITY	C.F.M.
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														

PRIMARY SENSE IMPRESSION NOTES

Nº OCCUPANTS		WINDOWS Nº		RADIATORS		WEATHER	
PHYSICAL STATE		TYPE		TYPE	SQ. FT	TEMP DRY	WET R.H.%
AIR SPACE PER OCCUPANT		AREA				WIND DIR.	VEL. Mi. Per Hr.
TOTAL AIR SUPPLY BY CO_2 PER MIN		LEAKAGE				CHICAGO COMMISS'N on VENTILATION	
AIR SUPPLY PER OCCUPANT BY CO_2 " "		RATIO TO CU. CONTENT				TEST BY	
" " " " " FAN " "		FLOOR AREA PER PERSON				PLOTTED BY	
AIR DISTRIBUTION %						APPROVED BY	
						DRAWING Nº	

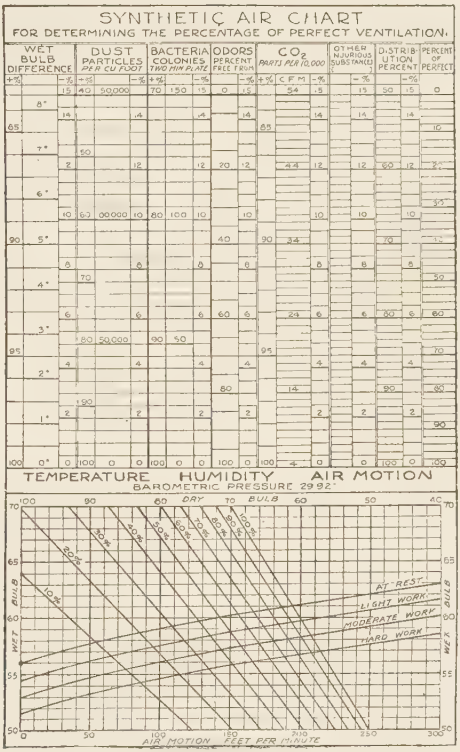


FIG. 215. Synthetic Air Chart. Both sides. (Reprinted by permission of S. Vernon Hill Company, Chicago, Ill.)

1. The plus percent column signifying the percent of a perfect score attained for the particular factor.

2. A central column using the proper units of measurement such as number of colonies of bacteria and number of dust particles per cubic foot.

3. A minus percent column. All minus percentages are totaled and then subtracted from 100 to obtain the final score on a percentage basis.

The temperature, humidity, air motion curves at the bottom of the form are for plotting wet bulb readings against air motion. The air motion by the test is now marked along the line showing the physical state of the occupants of the rooms, as "at rest." The perpendicular distance between the two points shows the difference between what the wet bulb should be and what the wet bulb actually is. This is plotted as the wet bulb difference.

The distribution percent is determined by the averaging of tests for CO_2 samples of air from all parts of the room. The percentage of variation of different samples from the average is the distribution percent.

The back or "Test Data" side of the card is for notes.

JANITORS

The trained janitor who is interested and does his work will solve many of the heating and ventilation problems. It is from the more intelligent members of this group that schools may discover means of improvement. On the other hand, no mechanical duct type of heating and ventilation system, no matter how good, will prove satisfactory in careless, lazy hands. Control of the window gravity or modified window ventilation system is for the most part, right in the school room, by teacher and pupils.

FIRE PROTECTION

All school buildings should be constructed of either fireproof or fire-retarding materials. Auditoriums are now built on the first floor, and state laws require special fire exits marked with suitable signs. While exits are usually marked with red lights at present, the tendency toward green signs is noted, an exit being for safety, and not a hazard. The present red color was used originally because fire apparatus has always been painted red traditionally, and exit signs were considered part of the fire-fighting program of any city.

Fire-escapes should be planned as enclosed stairways, since the other types are frequently forgotten in panics. Children should use these fire-escapes for regular passage at least once a day.

Exit doors must swing outward and must be fitted with special inside fixtures which release their locks rapidly. The present tendency is to prefer single doors set in separate frames.

Doors leading from class-rooms must be recessed, according to present standards. There is a practical architectural difficulty in making all class-room doors swing out, since such a method obstructs corridors. In emergencies, the teacher is supposed to be in full control of her pupils in her

class-room. Some authorities believe it is therefore unnecessary for class-room doors to swing out.

Fireproof doors, which close automatically during a fire in their vicinity, should divide the building into different sections. However, if the building has enclosed stairways, some authorities question the necessity of such doors in a well-constructed fire-resistive building.

Some states, such as Massachusetts, require smoke stops at the end of corridors on the lower floor, where the stairs are in the ends of the building, thus increasing the chances of stairs being available and not cut off, if fire should start in the first floor.

Basements should be completely fireproof in all new buildings. In old buildings it is practicable to substitute masonry partitions for frame partitions, and to plaster basement ceilings with plaster on metal lath.

Stairs should be of metal or concrete, at least five feet wide and provided with a handrail on either side. Corridors[1] must be perfectly free from obstruction at all times. Paper, ashes, and oily waste should be carefully placed, preferably out of the building to avoid incidental fires. The arrangement of the heating apparatus of the building must be one which eliminates possibility of fire as far as possible. This is a matter for an architect to work out.

There has existed previously a Building Exits Code, set by the Committee on Safety to Life. The responsibility for the revision of this code has been assumed recently by the American Engineering Standards Committee, of which the American Institute of Architects is a member. The new code, which is planned to be thoroughly practicable in its provisions, should be available by January, 1927. At that time copies may be obtained from the American Engineering Standards Committee,[1] 29 West 39th St., New York, N. Y.

[1] The American Engineering Standards Committee has available or in preparation four building codes of unusual importance to school architects. All such codes are prepared by special, representative, sectional committees and are absolutely authoritative. The codes are: 1. Lighting Code, quoted liberally in this book, in section on school lighting. This is now available from the American Engineering Standards Committee, 29 West 39th St., New York, N. Y.

2. The following codes in preparation but not yet available. When available, they may be obtained from the Committee. Problems concerning fields covered by these codes may, in the meanwhile, be referred for advice to the American Engineering Standards Committee.

(*a*) Building Exits Code. Mentioned and discussed in text above. Available about January, 1927.

(*b*) Walkway Surface Code. This code is planned to cover slipping hazards on floors of corridors and vestibules, stair-treads, and all surfaces on which individuals walk. Since such surfaces vary in slipping hazards under different conditions, such as changes of weather and temperature, it has been difficult to develop suitable standards. Studies of accident insurance data were made, but owing to the types of data kept, only limited information could be obtained from this source. It can not be stated at present when this code will be available.

(*c*) Code for auditoriums in school buildings. This code is in preparation, but no further statement on it is available at this time.

CARE AND CLEANING

This matter is discussed in detail under "Janitor service."

If a definite official is in charge of the buildings, much better janitor service may be expected. His inspections should be frequent but not at stated intervals. Surprise is preferable and reveals true conditions.

The grounds should have whatever care they need to be kept in first-class condition. One cannot expect grass to thrive on a much-used playground however, and for that reason many schools prefer a surface of fine screenings. To avoid accidents, watch must be kept for projecting stones and rocks and these should be removed. Screenings have to be renewed occasionally.

Special cleaning may be desired in case of special dirt and when a case of contagious disease has been discovered in the room during the day. Whether the janitor should be paid extra for such work is a matter for individual school executives to decide.

Cleaning, in general, should be done often enough to keep the school on a sanitary level with the good home of the community.

Much unnecessary work may be avoided through teaching pupils to care for and take a pride in their school building. Carelessness should be met with suitable discipline.

Floor oil. The use of floor oil is warmly discussed.

Those in favor of it claim:

1. That it permits less dust in the rooms and does not permit dust to rise from a floor when pupils are walking about; that cultures have shown that air and furniture surfaces have lower bacterial counts than when oil is not used.

2. That the janitor's work is thus more efficient and relatively easier.

Those who do not favor oil claim:

1. That it merely catches and holds dust and the floor is therefore really dirtier;that oil is in no way bactericidal unless a special preparation is used.

2. That it dirties clothing.

3. That it affords the janitor opportunity for avoiding cleaning, since dust and dirt are less easy to detect.

4. That the floor in the region of the iron parts of the seats is rapidly stained an unusually dark and dirty color.

5. That a definite and unpleasant odor is characteristic, although unnoticed by those who become accustomed to it.

One cause of the difficulty may be the inefficient application of the oil, usually too much being applied. At any rate, the use of oil may be given careful consideration. Floor oil is never used in kindergartens or in domestic science laboratories where it would soil clothing. In Minneapolis schools, the use of floor oil is claimed to be very successful.

Mechanical devices. Central vacuum cleaners with complete attachments are a necessity in the modern school building. They perform many duties well.

Scrubbing machines, floor polishing machines and similar devices have definite advantages particularly in large buildings, especially when these have large, clear floor surfaces.

In general, devices of this sort, ash hoists, and other mechanical contrivances prove economical and lead to better work on the part of the janitors who believe a genuine interest is taken in their work and they react accordingly.

REPORTS ON SCHOOL PLANT

Each year each school principal should be expected to make a definite written report regarding his building and its needs. Whether this is a separate report or part of his general report is unimportant. The *Principal's General Report at Alameda, California*, made every four weeks, contains the following items about the school plant.

1. **Buildings.**

"Any defacement of walls?
Which rooms, if any, have broken windows?
Is the building properly swept?
Are the lavatories and toilets in sanitary condition?
Is the heating plant working satisfactorily?
Any suggestions concerning ventilation?
Any necessary repairs reported, but not attended to?"

2. **Grounds.**

"Is the lawn properly watered?
Is the lawn properly weeded?
Does the gardener plant and care for flowers and shrubs?
Is the garbage removed frequently enough?
Are the grounds clear of paper and rubbish?
Are the sidewalks swept clean?
Are the faces in good condition?
Is the flow of water in garden and toilets regulated economically?
Is rubbish frequently removed from gutters?
Is the space between the sidewalk and curb clear of weeds, etc?
Are the trees properly pruned?
Is the yard properly drained?
Are repairs needed?"

3. **Furniture.**

"Total number of pupils' desks and seats in building;
Total enrollment in building;
Number of desks defaced during month;
Number of desks with broken castings;
Any adjustment of desks needed?

If new desks are needed, state number and size of desks and number of room in which they are to be installed.

Are inkwells properly cleaned and filled?
Are blackboards and crayon trays kept clean?
Are repairs to window shades needed? If so, in which rooms?"

4. **Supplies.** No questions here have any relation to health except: "Is your fuel satisfactory?"
5. **Supervision.** Unrelated to health except: "Has the health of the children been looked after, as far as possible by the nurse?"
6. Wider **use of school plant.** "Any damage to building through wider use? Any complaint from neighbors as to activities after school."

The reader can readily determine that such a report, properly made out, would have an important effect on improvement of school sanitation.

St. Paul Public Schools Form

This form is used for the *Nurses' Sanitary Survey* for Schools. It indicates another valuable duty which the nurse may perform.

ST. PAUL PUBLIC SCHOOLS
DIVISION OF HYGIENE
Nurses' Sanitary Survey of Schools

Date_____192 _____School

	School Room	Yes	No
1.	Is damp sweeping practiced?		
2.	Is a moist cloth used for wiping up dust?		
3.	Has feather duster been abolished?		
4.	Is any disinfectant used upon the floors?		
5.	Are the desks cleaned with a disinfectant?		
6.	Are the school books disinfected when necessary?		
7.	Is the common use of articles which might carry infection avoided?		
8.	Are all the windows thrown open at recess?		
9.	Is the room thoroughly washed with soap and water after contagious disease has been found in it, as well as fumigated?		
10.	If a stove is used in the room, does it have a "jacket" around it and is there special arrangement for ingress and discharge of the air from the room?		
11.	Is the fresh air inlet removed from toilets, or other sources of contamination?		
12.	Is the room free from unpleasant odors at all times?		
13.	Are green or brown flat finish boards used instead of glossy black?		
14.	Are the floors oiled or otherwise treated to prevent dust from rising from them?		
15.	Is the room temperature kept even?		
16.	Is it kept under 70 degrees and over 60 degrees?		
17.	Do the windows have an area equal at least to one-fifth the floor area?		
18.	Are the desks so placed as never to face direct sunlight?		
19.	Is the room evenly lighted? Left Front Rear Right		

FIG. 216. Nurses' Survey. Such a report would be a valuable adjunct to Fig. 216*A*. The two might well be used in any school system.

SANITARY INSPECTION OF SCHOOLS BY THE MEDICAL INSPECTOR

Two types of forms are found: one is used to describe conditions as they exist and to suggest certain remedies; the other type to score the school plant.

Scoring forms. Scores are based on such gradations as excellent, good, etc., or on percentages.

SANITARY STUDY OF OAKLAND SCHOOL BUILDINGS

GENERAL

Building ... Principal ... Custodian ...
Material ... No. Classrooms ... Total Sittings ...
Enrollment last month Girls ... Boys ... Total ...
Av. attendance of last month Girls ... Boys ... F. Teachers ...
M. Teachers ...

HEATING AND VENTILATING

Heating System: Type ...
Control ...
Temperature Records: Kept by ... Frequency ...
Reported to ... Frequency ...
Ventilating System: Type ...
Control ... Automatic ... If not by whom ...
Location of fresh air intake ... How screened ...
Humidification ... Material of screen ...
Humidity records ... Size of mesh ...

TOILETS	GIRLS	BOYS	TEACHERS
Floor			
Material			
Drainage			
How cleaned			
Frequency			
Condition			
Closets			
Number of seats			
Condition			
flush			
leaks			
seats			
Type of flush			
Privacy			
Paper: Where			
On hand (in boxes)			
Cleaning method			
Frequency			
Ventilation			
Methods			
Odors			
Urinals			M. Teachers
Type			
Number of individual urinals			
Number of feet or urinal trough			
Material of urinal trough			
Type of flush			
Condition of flush			

FIG. 216A.

LUNCH FACILITIES

Teachers: .....

Where located.....how cleaned .....when .....

Light..... Heating..... Ventilation .....

Pupils: .....

Where located .....how cleaned .....when .....

Light .....Heating ..... Ventilation .....

GARBAGE

Where located.....Collected by whom.....

Type of container. ..... How often.....

Condition of container..... Covered .....

WASHING FACILITIES	GIRLS	BOYS	TEACHERS
Number of wash basins			
Type			
Condition			
Hot water available			
Type of faucet			
Soap provided: Kind			
On hand at basins			
Individual towels provided			
On hand			
Where kept			

WATER SUPPLY	GIRLS	BOYS	TEACHERS
Source			
Bubbling fountains: No.			
Type			
Condition			
Individual cups provided			
On hand			
Common cups			

RECREATION AND GYMNASIUM FACILITIES		GIRLS	BOYS	TEACHERS
Playground:	Area			
	Equipment			
	Maintenance			
	Condition			
Gymnasium:	Size			
	Equipment			
CLEANING	Use			

Type of floor.....how often washed.....how often oiled.....

Sweeping

Method .....

Time .....

Dusting

Method .....

Time .....

Windows — Clean.....How often washed.....

PHOTOGRAPHS

Taken ..... Where .....

Wanted ..... Where .....

DATE OF INSPECTION.....HOUR .....WEATHER.....

INSPECTOR .....

FIG. 216A. (*Continued.*)

FIG. 216A. Oakland, Cal. Very comprehensive. Used partly as a survey for school sanitation, the rest being devoted to epidemiology and lecture activities. It is printed to suggest that very simple but useful reports of this sort should be expected from similiar sources in any school system. See Fig. 216, page 492.

Schenectady Public Schools
MEDICAL INSPECTION

Hygiene and Sanitation Date

School Describe general health conditions

Ventilation Light

Heat Water fountains

Toilets: how often cleaned Odor

Play Grounds Surrounding premises, out houses, manure piles, uncovered garbage, etc.

No. cases contagious disease Prevailing diseases

Where is source of infection?

How long before controlled? Interval between cases?

Recommendations:

Lectures—Subject. Date

Signature

FIG. 217. Schenectady Public Schools. White card 3″ × 5″.

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF HEALTH.

SANITARY INSPECTION OF SCHOOL BUILDING

_____ School Building _____ { City / Borough / Township

_____ County, _____ 19 __

To the Board of School Directors

Your attention is respectfully directed to conditions requiring improvement at the above named building as indicated by notations in the following report:—

ROOMS (Designate rooms by grades or room numbers for multiple room buildings)

Overcrowded, less than 200 cu. ft. air space per pupil in _____ rooms

Additional light area should be provided in _____ rooms
(Glass area shall equal 20% of floor surface)

Pupils' desks directly face incoming light in _____ rooms
(This condition requires an immediate remedy)

Light or buff colored window shades required for _____ rooms

Walls and ceiling require painting or calcimining in _____ rooms
(Light green-gray, or light buff with white or ivory ceiling is recommended)

Better blackboards should be provided for _____ rooms

Some pupils' feet do not touch the floor when seated in _____ rooms
(Adjustable single seats and desks should be provided)

Good thermometers are required for _____ rooms

HEATING AND VENTILATION (X indicates conditions requiring attention)

Stove jackets are required under Section 619 of School Code for ordinary stoves _____
(Modern, jacketed, ventilating heaters or cellar furnaces should replace ordinary stoves)

Outside fresh air ducts should be provided to stoves or radiators _____
(Such ducts or the use of window boards, required by law)

If common stoves, or direct steam or hot water heat continues in use, window ventilating boards are required under Section 620 of School Code _____

Windows must be made to permit lowering from the top _____

Provisions for supplying moisture to heated air are required _____

Present heating system needs repairs _____

*Better heating and ventilating system required _____

Outside fresh air ducts are required to cellar furnace _____

Outside intakes to air ducts must be kept open continuously during school hours _____

Ducts for the exit of foul air should be provided _____

*Furnaces re-circulating and re-heating school room air or the "Pipeless" furnace cannot legally be used for school room heating

FIG. 218. Pennsylvania. A form provided by the

SANITARY INSPECTION OF SCHOOL BUILDING—Continued.

BUILDING

(X indicates conditions requiring attention)

The following repairs are required .....

.....

.....

.....

.....

(Note walls, doors, windows, floors, etc.)

A new building with modern equipment should be provided .....

School rooms require more careful cleaning.....

Halls and cloak rooms require cleaning.....

Floors require oiling with good floor oil.....

Oiled sawdust or sweeping compound is required for use in sweeping.....

Furniture requires dusting daily with a moist or oiled cloth.....
(Dry dusting is forbidden)

Iron fire escapes are required.....
(For two or three story building)

Fire drills should be regularly conducted.....

Exits must be kept free from obstruction.
(Doors must open outward)

A First Aid Cabinet should be provided.....

.....

WATER SUPPLY

Spring, well, or cistern requires protection against surface drainage .....

A safer water supply should be provided.....

A covered water container with spigot, or bubbling drinking fountain is required.....

The use of the common drinking cup must be absolutely abolished
(Individual cups kept in a closed case or bubbling fountains attached to supply pipe faucets should be provided)

The use of a common towel is illegal.....
(Paper towels or other individual towels must be used only)

GROUNDS

Larger play grounds should be provided.....
(At least an acre of ground should be provided)

School grounds require better drainage.....

TOILETS

Toilets require immediate cleaning.....

Toilets require immediate repairs.....

Flush Closets

Toilet fixtures must be properly trapped

.....

Proper vent pipes must be connected to toilet fixtures .....

Outside Privies

*Proper screens and boys' outside urinals are required .....
(Non-flushing inside urinals are to be condemned)

*Fly proof, concrete toilet vaults should be constructed .....
(Surface water must not be permitted to drain to privy vaults)

Privy vaults require emptying and cleaning .....

Lime is required for weekly use over privy vault contents .....

*Sketch of approved outside toilet will be furnished upon request to State Department.

Remarks:

..... M. D.
Inspector.

The Medical Inspector of Schools is required to inspect sanitary condition of buildings, outbuildings, water supply, etc., and enforce sanitary requirements. Sec. 1009 School Code.

State Dept. of Health for recommendation for repairs.

School, ...
Principal or Teacher, ...
P. O. .....
Sec. of Board, ...

COMMONWEALTH OF PENNSYLVANIA.
DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, Commissioner.
SANITARY SURVEY OF SCHOOLS.

..... County.
..... Township.
..... Borough
P. O. ..... 191....

Report below for each occupied room, using but one Form 51-A to a building, unless it contains more than 12 rooms.

I. SCHOOL BUILDING.	Room 1.	Room 2.	Room 3.	Room 4.	Room 5.	Room 6.	Room 7.	Room 8.	Room 9.	Room 10.	Room 11.	Room 12.
1. Number of school or class rooms in building?												
2. Number of square feet of floor surface in each room?												
3. Number cubic feet air space in each room?												
4. Number of occupants in each room? *(Total enrollment plus teacher).*												
5. Number square feet floor surface per occupant?												
6. Number cubic feet of air space per occupant?												
☞ *Answer for each room occupied for study or recitation purposes.*	Yes or No.	Yes or No.	Yes or No.	Yes or No.	Yes or No.	Yes or No.	Yes or No.	Yes or No.	Yes or No.	Yes or No.	Yes or No.	Yes or No.
7. Does light area equal 20 per cent. of floor surface?												
8. Does light enter only from the side, or rear and sides of seated pupils?												
9. Are light or buff-colored shades used? *(yes, no, or none).*												
10. Are the rooms clean?												
11. Have the floors been recently oiled? *(If a vacuum cleaner is used note here).*												
12. Is saw dust or other substance moistened with a disinfectant used before sweeping?												
13. Has dry dusting been entirely abandoned? *(A moist or oiled cloth should be used).*												
14. Are adjustable *(shifting)* seats and desks used?												
15. If seats are not adjustable, are foot-stools provided for children whose feet do not touch the floor?												
16. Are pencils or pens collected?												
17. Are they redistributed so as to insure such pupil getting his own? *[If not collected answer (——)]*												

☞ *Answer Yes or No, for the entire building.*

	Yes or No.
18. Is an ordinary stove used?	
19. Is it jacketed?	
20. Is a modern, single-room, jacketed, ventilating heater used?	
21. Is a direct steam or hot water system used? *(Radiators within school rooms).*	
22. Is an indirect steam or hot water system used? *(Basement radiation, with heat ducts to rooms).*	
23. Is a hot-air furnace used? *(Indirect heat, basement furnace).*	
24. Is a good thermometer provided for each room?	
25. Is moisture added to the heater air?	
26. Is the degree of moisture determined by the use of an hygrometer?	
27. Are fresh air inlets provided by the stove, radiators, steam coils, or furnace?	
28. Are fresh air inlets fed through ducts leading from outside the building? *(Answer (——) if 27 is "no").*	
29. Do they receive air remote from toilets or other sources of contamination? *(Answer (——) if 27 is "no").*	
30. Is a flue provided with opening near the ceiling or floor, for the exit of foul air?	
31. Is a mechanical or forced system of ventilation used? *(Fan, or accelerator steam coils).*	
32. Is the system in good working order?	
33. If fresh air inlets and foul air exits are not provided: (a) Are some windows always open from top or bottom?	
(b) Are ventilation window boards, or shields to deflect incoming cold air in use?	
(c) Are windows kept open during recess?	

Note.—The School Code requires 15 square feet of floor space and 200 cubic feet of air space per pupil in modern buildings. Where no ventilation device is available, at least 600 cubic feet should be provided for each pupil. *Dry* cleaning, the use of the feather duster, or of the common drinking cup, should always be condemned. Pencils must never be exchanged.

SANITARY SURVEY OF SCHOOLS

II. BASEMENT.	Yes or No.
34. Is the basement dry?	
35. Is the basement clean?	
36. Is the basement well ventilated?	
III. HALLS, EXITS, ETC. *If one-story building, questions 42 to 46 should be answered with a dash (——)*	
37. Are the halls clean?	
38. Are they well lighted?	
39. Are they well ventilated?	
40. Are well-ventilated, clean, dry cloak rooms provided?	
41. Number of stories? *(Answer with figure 1, 2, or 3).*	
42. Are stairs wide and flights straight?	
43. Are exits free from obstruction?	
44. Do the exit doors open outward?	
45. Are iron fire escapes provided?	
46. Are fire drills conducted regularly?	
IV. WATER SUPPLY, ETC. *Answer questions not applicable with a dash (——)*	
47. Spring or well on grounds. / Spring or well nearby premises. / Public or municipal water system.	
48. If spring or well, is it protected from surface drainage?	
49. If it is protected from privy vault, cesspool or manure seepage or drainage?	
50. Is water kept in a container within the school building?	
51. Is a covered container with spigot used?	
52. Is a covered container with bubbling fountain attachment in use?	
53. Is the container scalded weekly?	
54. Is a fresh supply secured daily?	
55. Are bubbling fountains attached to water system pipes in use?	
56. Has the common drinking cup been absolutely abolished?	
57. Is a stationary wash stand provided? / Common basin?	
58. Are paper towels, or other individual towels used exclusively? *(answer yes, no, or none)*	

V. GROUNDS.	Yes or No.
59. Are play-grounds adequate in size for number of pupils?	
60. Are the play-grounds well drained?	
61. Are grounds free from pollution with fecal matter, or urine?	
62. Are grounds and immediate vicinity free from accumulations of manure, garbage or other refuse?	
VI. TOILET PROVISIONS. *(Answer "yes" under style in use).*	
63. Outside privy. / Chemical closet / Dry or incinerating system. / Flush closet.	
64. Are separate toilet facilities provided for each sex?	
65. Are toilets or closets in good repair?	
66. Are they clean?	
67. Have toilet vaults or receptacles been properly cleaned?	
68.* Do toilets or closets drain into a stream?	
OUTSIDE PRIVIES *Answer 69 to 73 for outside toilets only.*	
69. Are the entrances lawfully screened? *(Separate approaches, with tight screens shielding entrances from view).*	
70. Are privies tightly closed at the base so as to excludes flies and cold draughts?	
71. Are privy vaults or receptacles water tight?	
72. Is lime or other disinfectant regularly used over fecal contents?	
73. Style of Privy Vaults or Receptacles. *(Answer "yes" under style in use).*	
Portable Box. / Surface. / Earth Pit. / Planked. / Masonry. / Concrete. / Chemical Tank.	
FLUSH CLOSETS 74. Do flush closets discharge into cesspools?	
75. Do they discharge into a public sewerage system?	
76. Are fixtures properly trapped?	
77. Are soil vent pipes carried to a point above the roof?	
78. Are closets and urinals frequently disinfected?	

Remarks: *(If privies or flush closets drain into stream give name of stream.)*

.....M. D.

.....P. O.

Attach to this report the completed medical reports, Form H, together with Forms 66A for all schools in this building and mail to the Department as soon as the schools in the building are completely inspected.

FIG. 219. Pennsylvania form for sanitary survey of school.

CINCINNATI HEALTH DEPARTMENT

BUREAU OF CHILD HYGIENE — SANITATION OF SCHOOL BUILDINGS

NAME OF SCHOOL _____ INSPECTOR _____ DATE _____

I. VENTILATION 20% — CLASS ROOMS (Regular)

Room, Number and Grade	Average Attendance	System Of Ventilation	Height Of Wall	Capacity Cu. Ft.	Cu. Ft. Air Space Per Child	Rating

AVERAGE RATING

II. ILLUMINATION 20% — CLASS ROOMS (Regular)

Number Windows	Total Area Square Ft.	Proportion Window Area To Floor Area	Window Exposure	Light Obstruction Outside	Light Falls From	Rating

AVERAGE RATING

III. SEATING 15% — CLASS ROOMS (Regular)

Kind Desks	Properly Adjusted To Size	Proper Position To Light	Actual Number	Square Ft. Floor Space Per Desk	Rating

AVERAGE RATING

IV. Pupils' Toilets 10%

	Character of Toilets	Number of Seats	Number of Pupils	Number of Pupils Per Seat	Average Rating	URINALS: COMMON WALL — Length in Inches	COMMON WALL — No. of Boys Per Inch Wall Space	INDIVIDUAL — Number	INDIVIDUAL — No. of Boys Per Individual	Average Rating
BOYS										
GIRLS										

V. YARD 10%

Area of Boys' Yard	No. of Boys	No. Sq. Ft. Per Boy	Area of Girls' Yard	No. of Girls	No. Sq. Ft. Per Girl	Average Rating	Area of Common Yard	Total No. Pupils	No. Sq. Ft. Per Pupil	Paving	Drainage	Average Rating

VI. DRINKING WATER 10%

No. Fountains or Faucets	Pressure Constant?	Ht. of Bubble Above Brim	Average Rating

VII. Exits 5%

Hallways, Stairways, Doorways — Free Passage	Hallways, Stairways, Doorways — Illumination	Fire Escapes — Number	Fire Escapes — Adequacy Accessibility	Average Rating

VIII. Non-Academic Class-Rooms 5%

Character	Ventilation	Illumination	Average Rating

Building In General

SUMMARY OF GENERAL INFORMATION — NOT CRITICAL IN CHARACTER

No. of Stories	No. Class Rooms: Regular	No. Class Rooms: Vocat.	Modern Semi-Modern Old	General System of Heating	Character Artificial Illumination	Character Structural Ventilation

IX. MISCELLANEOUS ITEMS 5%

Average Rating

EXCELLENT 100-90. GOOD 89.9-80. FAIR 79.9-60. POOR 59.9-50. Bad 49.9-0. (STANDARDS ON OTHER SIDE)

GENERAL RATING OF PLANT

Ventilation	Illumination	Seating	Toilets & Urinals	Yard	Water	Exits	Non-Academ	Misc.	GRADE OF ENTIRE PLANT

FIG. 220.

TABLE OF STANDARD RATINGS BASED ON MEASUREMENTS

ITEM	METHOD OF CALCULATION	GRADES				
		EXCELLENT	GOOD	FAIR	POOR	BAD
VENTILATION	Cu. Ft. Air Space per Child	200. or more	199.9–175.	174.9–150.	149.9–133.3	133.2 or less
	Proportion of Proper Supply	*Standard*	*Standard–7/8*	*7/8–3/4*	*3/4–2/3*	*2/3 or less*
ILLUMINATION	Relation of Window Area to Floor Area	.20 or more	.1999–.1667	.1666–.1250	.1249–.1111	.1110 or less
	Proportion of Proper Supply	*Standard*	*Standard–5/6*	*5/6–5/6*	*5/6–5/6*	*5/6 or less*
DESK PROVISION	Sq. Ft. Floor Space per Desk	15. or more	14.99–13.13	13.12–11.25	11.24–10.0	9.99 or less
	Proportion of Proper Supply	*Standard*	*Standard–7/8*	*7/8–3/4*	*3/4–2/3*	*2/3 or less*
BOYS' TOILETS (Seats)	Boys per Seat	40. or less	40.01–60.	60.01–120.	120.01–160.	160.01 or more
	Proportion of Proper Supply	*Standard*	*Standard–2/3*	*2/3–1/2*	*1/2–1/4*	*1/4 or less*
BOYS' TOILETS Common Wall Urinal)	Boys per Inch Wall Space	1.25 or less	1.251–1.875	1.876–3.75	3.76–5.0	5.01 or more
	Proportion of Proper Supply	*Standard*	*Standard–2/3*	*2/3–1/2*	*1/2–1/4*	*1/4 or less*
BOYS' TOILETS (Individual Urinals)	Boys per Individual Urinal	24. or less	24.01–36.	36.01–48.	48.01–60.	60.01 or more
	Proportion of Proper Supply	*Standard*	*Standard–2/3*	*2/3–1/2*	*1/2–2/5*	*2/5 or less*
GIRLS' TOILETS	Girls per Seat	24. or less	24.01–36.	36.01–48.	48.01–60.	60.01 or more
	Proportion of Proper Supply	*Standard*	*Standard–2/3*	*2/3–1/2*	*1/2–2/5*	*2/5 or less*
YARD AREA	Square Feet per Pupil	36. or more	35.99–24.	23.99–12.	11.99–9.0	8.99 or less
	Proportion of Proper Supply	*Standard*	*Standard–2/3*	*2/3–1/2*	*1/2–1/4*	*1/4 or less*
DRINKING WATER FACILITIES	Pupils per Faucet	50. or less	50.01–75.	75.01–150.	150.01–200.	200.01 or more
	Proportion of Proper Supply	*Standard*	*Standard–2/3*	*2/3–1/2*	*1/2–1/4*	*1/4 or less*

O. M. CRAVEN, M. D.
Chief Medical Inspector

FIG. 220. Cincinnati form. A simple method of standard rating is given on the back.

CICERO HEALTH DEPARTMENT

Sanitary Inspection of Places Where Foods Are Prepared for Sale or Sold

Owner or Manager.....
Trade Name .....
Street and No.....
License No.....Date of Inspection.....

Equipment	Score Perfect	Score Allowed	Methods	Score Perfect	Score Allowed
Plant			Plant		
Construction 10			Cleanliness 20		
Floors and Drainage..	7	.....	Floors	5	.....
Walls	2	.....	Walls	3	.....
Ceilings	1	.....	Ceilings	1	.....
Arrangement 7			Doors	1	.....
Proper Rooms.....	4	.....	Windows	1	.....
Convenience	3	.....	Good Order	1	.....
Light	5	.....	Free from Odor.....	2	.....
Ventilation	5	.....	Freedom from Flies..	6	.....
Screens	5	.....	Equipment (Cleanliness) 30		
Cellar	3	.....	Ice Boxes.....	10	.....
Plumbing 20			Tables	5	.....
(Kind, quality, location and condition)..			Sinks	5	.....
Water Closets.....	10	.....	Utensils	10	.....
Sinks	10	.....	Employees' Cleanliness.	5	.....
Equipment 25			Foods 30		
(Kind, quality, arrangement)			Conditions	10	.....
			Storage	10	.....
Ice Boxes.....	15	.....	Handling	5	.....
Tables	5	.....	Cleanliness	5	.....
Utensils	5	.....	Garbage Receptacles..15		
Water for Cleaning.....20			Adequate	5	.....
Hot	15	.....	Location	5	.....
Cold	5	.....	Condition	5	.....
	100			100	
Additional Deductions for Exceptionally Bad Conditions.			Additional Deductions for Exceptionally Bad Conditions.		
.....		.....	.....		.....
.....		.....	.....		.....
.....		.....	.....		.....
Total Deductions		.....	Total Deductions		.....
Net Total			Net Total		

Score for equipment..... multiplied by 1.....
Score for methods ..... multiplied by 2.....
Total to be divided by 3.....
Final Score..... .....

REMARKS. (To cover such unusual conditions as sleeping accommodations, or the presence of domestic animals in or about work rooms, etc.).....
Approved..... Disapproved.....
.....
.....
Inspector.

FIG. 221. Cicero, Ill. This form scores on what is roughly a percentage basis. White card 4″ × 5″. Exceedingly simple. Adaptable to the study of the school lunch room.

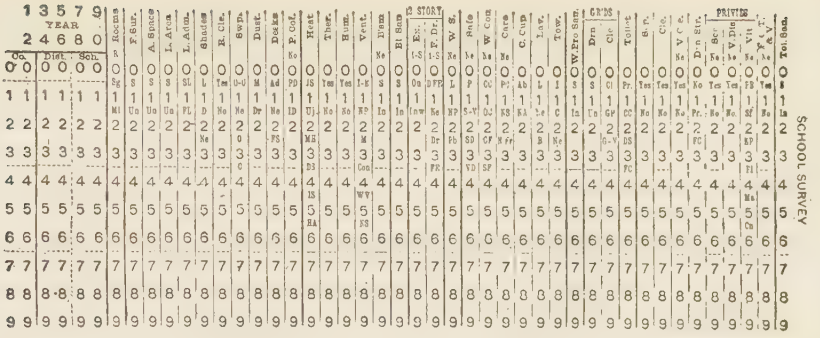


FIG. 222. Punch Machine Record for rapid statistical work in a school survey. (Reprinted by permission of the publishers, The Tabulating Machine Company, 50 Broad St., New York, N. Y.)

The Strayer-Englehart score cards. These are the best and most complete forms known to the authors: They are of two types:

1. For city school buildings.
2. For village or rural school buildings of four teachers or less.

Scoring is on the basis of a total perfect score of one thousand. A book of standards is used with the cards. It contains 22 pages of material on which ratings are based. Most up-to-date school systems use this type of form. These forms and directions may be obtained from the publishers, Messrs. C. F. Williams and Son, Inc., 36 Beaver Street, Albany, N. Y. The same authors have prepared a series of forms to be used for providing all necessary information for an architect who is requested to design a school building, including description of the lot, type and number of rooms desired, and other equally valuable data. These forms are most comprehensive and well-planned, and recommended highly by school executives who have used them.

Scoring the school plant. Several forms for this purpose have been shown. If a comprehensive repair program is to be planned, buildings must be scored, and their needs recorded. In this manner it is possible to have available accurate information regarding any building in the school system. Buildings should be rescored at stated intervals.

TEN SANITARY COMMANDMENTS FOR RURAL SCHOOLS

In every school which may be considered passably sanitary the following conditions shall obtain:

1. Heating by at least a properly jacketed stove. (No unjacketed stove to be allowed.) Avoid overheating. Temperature should never go above 68° F.
Ventilation by direct outdoor air inlets and by adequate and direct foul air outlets.

2. Lighting from left side of room (or from left and rear) through window space at least one-fifth of floor space in area.

3. Cleanliness of school as good as in the home of a careful housekeeper.

4. Furniture sanitary in kind, and easily and frequently cleaned. Seats and desks adjustable and hygienic in type.

5. Drinking water from a pure source provided by a sanitary drinking fountain.

6. Facilities for washing hands, and individual towels.

7. Toilets and privies sanitary in type and in care (with no cesspools unless water tight) and no neglected privy boxes or vaults.

8. Flies and mosquitoes excluded by thorough screening of school house and toilets.

9. Obscene and defacing marks absolutely absent from school house and privies.

10. Playground of adequate size for every rural school.

PLAYGROUNDS AS A PART OF THE SCHOOL HEALTH PROGRAM

In some cities the municipal playgrounds are under the control of a commission (Park or Recreation Commission) but are under the supervision of the schools. Playgrounds are a distinct health asset to any community, provided they are properly conducted.

In addition to the usual administration of playgrounds as such, and in addition to their functions of improving health through providing suitable outdoor facilities for play, it is possible to extend the school health program into the summer holidays by installing a modified health program in the playgrounds. In one city, the junior author made certain efforts along this line. His plan included the following:

1. Assignment of one school nurse as playground nurse and providing her with means of transportation. Frequently she made trips with the supervisor or his assistant. She could always be reached by telephone in emergency. The members of the school nursing staff took turns at this duty.

2. The school physician was on call for emergencies, and for consultation. He visited each playground frequently.

3. Standard directions for first aid were given to all playground supervisors and conferences were held to discuss health problems which might arise. First aid kits were provided for each playground.

4. Children with communicable disease were excluded from a playground by the supervisor on the same basis that the classroom teacher excludes pupils from her classroom.

5. Plans for future expansion of the service included:
   (*a*) Follow-up of school children with health defects, through the medium of the playground during the summer. Attempts were to be made to persuade parents to have health defects, such as diseased tonsils, corrected during the summer vacation.
   (*b*) Child hygiene courses of the mothercraft type for mothers and girls of suitable age (grammar school) were to be included among

the courses available for the regular patrons of the playground. It was felt that such instruction would interest many women just as much as instruction in basketry or sewing.

6. For some years, the workers had had a very distinct interest in accidental prevention, and accidents were almost negligible both in number and seriousness.

Considerable success was attained during the season this plan was tried, and this was due almost entirely to the coöperation and intelligent interest of the supervisors and other playground workers.

JANITORS AS HEALTH AGENTS. HEALTH OF JANITORS[1]

Formerly the work of the janitor was assigned to some crippled or aged person who, for a small sum, would tend fires and keep the building more or less clean.

Various terms have been advocated as a substitute for the term janitor. Among these are "Janitor-engineer" and "Custodian." In Minneapolis the term "janitor" is used to mean "cleaner" and the following names are applied to the active personnel of the janitorial-engineering service in order of responsibilities:

1. Janitor-engineer-in-charge;
2. Assistant janitor-engineer-in-charge;
3. Janitor-engineer;
4. Janitor (cleaner);
5. Matron, janitress, charwoman;
6. Fireman;
7. Utility man.

Today the janitor is importantly concerned in the following connections:[2]

1. School health and sanitation;

2. The influence of physical conditions upon the comfort and learning attitude of the child;

3. The influence upon pupils of order and cleanliness of buildings in the maintenance of discipline, the formation of character, and the acquirement of habits of cleanliness;

4. The wider use of the school building and equipment by the school and the community;

5. The care of the valuable public property in the form of grounds, buildings, and equipment.

To perform such services to the community the janitor must have certain physical qualifications and certain special forms of skill and technic:

[1] The new booklet of the Metropolitan Life Insurance Company entitled "The Janitor and the School Child" is a popular message which should be in the hands of every janitor and every school official. In it are discussed such subjects as "Why People Catch Cold;" "Dust and Diseases;" "Stale Air;" "Overheating;" "Regulating the Heat;" "Simple Rules for Ventilation. The author is Dr. C. E. A. Winslow, Chairman of the New York State Commission on Ventilation.

[2] Reeves, C. E.: An Analysis of Janitor Service in Elementary Schools, Teachers College Bureau of Publications, 1924.

1. The physical qualifications may be summarized as the ability to pass a thorough physical examination. Special insistence should be made on physical strength to perform the necessary duties; absence of any disease which might be transmitted to pupils, such as Tuberculosis; absence of any chronic disease likely to prove incapacitating, such as any form of heart disease; absence of hernia in any form, unless cure has resulted from a successful operation; no history of epilepsy.

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE DEPARTMENT OF EDUCATION
STATE MEDICAL INSPECTOR OF SCHOOLS

SCHOOL HEALTH SERVICE

PHYSICAL EXAMINATION OF JANITOR

.....192

To the Superintendent of Schools:
Board of Education, Trustee: [1]

I have examined.....,

a janitor in.....Public School in the { city[1] / town / village } of.....

and do (not)[1] consider him in fit physical condition properly and safely to perform the duties of such position, because of.....

.....

Respectfully yours

.....M. D.
Medical Inspector of Schools

[1]*Cancel words not applying.*

FIG. 223. See also forms for examination of teachers. Many school systems use the same form for both groups. This New York State form is a white card $3\frac{1}{2}'' \times 5\frac{1}{2}''$.

2. Because of constant contact with pupils, the janitor must be a person of good character. Profanity within hearing of pupils cannot be tolerated.

3. Since the janitor must have charge of boilers, he is usually required to have an engineer's license to be eligible for the position.

4. In addition to this, either he must have acquired certain skills and technics mentioned below before being given the position, or he must be taught them after being employed. Probably the latter method will have to be used. Training courses for janitors are advocated and are directed toward familiarizing the janitor with his duties and with any apparatus, tools, or material which he will have to use or care for. The discussion of his duties following will show precisely what skills are required.

Womrath[1] advocates *training schools for janitors;* believes the success of such schools depends on:

"1. Good organization;
"2. Proper housing space;
"3. Competent instructors and textbooks;
"4. Proper equipment."

[1] Womrath, G. F.: School—Janitorial Engineering Service, American School Board Journal, Mar., 1925.

Personal hygiene of the janitor. In Minneapolis, after employment, the janitor is required:

1. To wear a prescribed uniform (consisting of a khaki colored shirt of suitable weight and material for the season, dark gray wool trousers, black bow tie, black belt with silver buckle, black shoes, and policeman's star) which is distinctive and attractive. To avoid colds, flannel shirts are required to be used during the seasons when the boiler room is very hot and outdoors very cold, since flannel has the property of protecting the body from sudden cooling as a result of the janitor going from a very hot boiler room, to colder places, such as out-doors.

2. Never to go about in the building nor to appear before pupils, principal or teachers, unless his face and hands are clean and his hair brushed. He is requested to have his hair cut frequently and to shave daily. He is reminded that he must practice good personal hygiene, if his profession is to receive respect from teachers and pupils.

Scope of janitor service. According to the classification of the Committee on Janitor Service of the National Association of Public School Business Officials, janitor service is divided into three parts: (1) cleaning; (2) heating and ventilating; (3) miscellaneous work.

(*A*) *Cleaning* consists of:

1. Cleaning all floors daily; and floors having unusual use, twice daily. Class-rooms are cleaned after school; corridors and stairs, during school hours. This work is done by vacuum apparatus or sweeping with brushes. (*a*) The central vacuum system with a hose no longer than forty feet is the best installation. Smooth floors clean more rapidly than rough ones. Single pedestal combination desks and seats permit the most economical use of time in cleaning. (*b*) Sweeping with brushes with or without sweeping compound requires a slightly longer time than that required with a vacuum cleaner. Sweeping compounds may or may not contain oil.

2. Dusting of all furniture every morning and all woodwork weekly. The best duster is the soft short cord duster with handle. This duster will give the best results if treated with furniture polish or kerosene, time being allowed for evaporation of the liquid used. Walls, ceilings, picture frames, and other articles of wall furniture should be cleaned with the vacuum system or with a brush during each vacation. Radiators must be high enough above the floor to permit cleaning underneath.

3. Scrubbing should be done during each vacation period, at least. A machine may be used. Scrubbing by mechanical means is superior to mopping. Floors must be thoroughly scrubbed before oiling.

4. Mopping. Unoiled floors should be mopped once or twice a week, scrubbing being substituted at frequent intervals.

5. Oiling floors. A spray is the most economical method of spreading oil both from the point of view of saving of oil and of saving time. Conveying oil to the mop by a water sprinkler avoids spreading the oil too thickly on the floor and keeps the oil away from the desk legs where it is usually thickest. The question of whether or not to use oil at all is discussed in the chapter on school sanitation.

6. Cleaning of glass in doors twice a week. Cleaning of glass in windows, outside, each vacation; inside, monthly. Kerosene is used in the water, one tablespoonful of kerosene to a 16 quart pail of warm water.

7. Cleaning of toilets. These have to be cleaned by hand, no satisfactory tool having been devised. Toilet rooms are flushed out with hot water from a hose or are mopped after each recess and dismissal period. Disinfectants of the phenol group are sometimes used. Unfortunately they conceal odors and thus encourage careless cleaning. A janitress often cares for the girls' toilets, the teachers' rest room, and light cleaning jobs.

8. Cleaning blackboards once a week or oftener if necessary. This requires thorough washing and wiping. Kerosene is used in cleaning. In Minneapolis water only is permitted.

9. Cleaning erasers and chalk trays. Erasers are best cleaned by the vacuum system, twice a week. Chalk trays are cleaned daily and wiped with kerosene.

10. Miscellaneous cleaning such as daily cleaning of wash bowls, drinking fountains and sinks; care of brass or other metal work; removal of waste from each room daily.

(*B*) *Heating* and *ventilation* duties of the janitor or custodian involve care of the furnace, keeping up the fire, removal of ashes from the furnace at least once daily, removal of ashes from the furnace room, attention to the fans and other parts of the heating and ventilating systems, including the observance of any standards laid down by the school regulations such as maintaining an even temperature of about 68°F., or starting or stopping the fans at times indicated by the rules.

In this work the janitor is assisted by such labor saving devices as small trucks, for bringing coal from the bin to the furnace and ash hoists.

(*C*) *Special work* of the janitor is of many varieties:

1. Placing clinker-free ashes in the school yard if the yard has not a good surface and screenings are not provided;

2. Minor repairs such as fixing window shades, minor plumbing repairs, small repairs to furniture, replacement of broken windows;

3. Care of the school yard and walks in summer and winter;

4. Policing the toilet rooms especially during recess and dismissal periods;

5. Certain clerical work in connection with requisition of supplies, reports, and similar work;

6. Numerous other small duties, rarely purely personal services for teachers or pupils.

From this statement of the janitor's duties, the reader can see what a variety of special skills and technics are required, and what physical demands are made upon such employees. As a result of these duties certain types of hazards arise:

1. *Dust.* This may be eliminated partly through discarding the old-fashioned feather duster. Vacuum cleaners can very nearly eliminate this hazard, especially if oil is used on the floors. The use of vacuum systems for cleaning erasers avoids dust hazards from these. Coal dust, and dusts

from cement floors can be avoided by the use of water. Dust from ashes can be banished: (*a*) By wetting the ashes before removing them from the furnace, taking special care not to allow the water to touch the grates, and using a full draft to take fumes and dust up the chimney during the wetting process; (*b*) by using proper apparatus for manipulating ash cans and by using proper covers for sifters, if sifting is done.

2. *Cleaning preparations.* Certain cleaning preparations, because of their caustic nature, are very hard on the hands of those who use them. If oxalic acid is used in whitening floors, it, too, can injure the skin of the hands. Preparations used for cleaning tile work can injure the skin and sometimes give off odors or gas also. Undiluted disinfectants, of the phenol type for example, may also prove injurious to the skin. Such hazards may be avoided, at least in part, by (*a*) choice of preparation; (*b*) special care in use to avoid contact of the skin and chemical as far as possible.

3. *Heavy lifting.* This occurs chiefly in connection with the heating plant and is avoided by (*a*) devices for assisting in handling the coal; (*b*) ash hoists. Large boxes of supplies must be handled only when ample assistance is available.

4. From *fires* and *boilers.* These are largely eliminated by boiler inspection. Occasional burns may result from carelessness near heated metal.

5. *Special hazards.* (1) Dangers sometimes arise from pupils manipulating gas hot water heaters, as by turning on the gas, resulting in an explosion when the janitor attempts to light the apparatus; tampering with other pieces of apparatus. These dangers are avoided by (*a*) placement of the apparatus in rooms inaccessible to pupils; (*b*) training the janitor to examine carefully any apparatus before he attempts to put it in use. (2) Injuries from earthenware and enamelware, when cracked. Such injuries occur in cleaning old toilets and basins. Whenever possible, brushes and other devices should be used instead of the bare hand. The janitor runs considerably more danger when toilets are used by adult groups who may have venereal disease. Covering any cracks or abrasions on the hands and receiving first-aid at once for any injury will lessen the dangers somewhat. (3) Diseases contracted from pupils. These might be contagious diseases. If infectious diseases are acquired it will usually be as a result of contact with some object the child has used. (4) While not a hazard, considerable discomfort to janitors can result from odors from the toilets in the basement. Cleanliness, plus suitable ventilation will care for this.

Most systems favor the employment of women assistants and the plan has been very successful. Their special duties include the housekeeping work of one school in which they are employed, and such other duties as may be assigned by the janitor in charge of the building.

The difficulties with present janitor service are due to limited personnel. This can be demonstrated by a comparison with the work required in commercial buldings, as shown by Reeves (*loc. cit.*):

Commercial buildings	man janitor cares for	8,000 cubic feet
	woman janitor cares for	6,000 cubic feet
School buildings: man janitor		12,000 cubic feet upward.

Janitors as a class tend to have a sincere, progressive interest in their work. In spite of this fact, the cleanliness of a building will depend largely upon the amount of assistance supplied.

Janitors' *salaries* are determined in two ways: (1) A flat rate is paid. Such a rate is based chiefly on the amount of work done. (2) Pay for amount of work done, as on the basis of so much per cubic foot of space ventilated and heated and so much per square foot of classroom floor area, corridor area, sidewalk, grounds, and other parts of the plant requiring care. In practise there is very little difference in the salary resulting from either plan.

Janitors' organizations have been very successful. Meetings are held at regular intervals; problems and methods are discussed; speakers are invited to address the group on topics concerning janitor work, and may be persons from other cities who are considered authorities, or various school officials to explain how the janitor's work correlates with theirs. These organizations frequently combine social enjoyment with occupational improvement. The group in Montclair, N. J. assists their supervisor by having committees of their own selection determine what types of apparatus seem to be most successful for adoption and this policy has resulted in great satisfaction on the part of the janitor concerning equipments provided.

Janitors are usually Civil Service employees and are, therefore, assured of *permanent appointment* if at all efficient. For this reason strict requirements for employment are desirable.

To secure the best type of men, promotion to better positions of greater responsibility and higher wages must be made possible and such advancement must be on the basis of merit or value to the school system.

The janitor often becomes an expert on his own school building; less frequently, in regard to his whole occupation. His opinion regarding the repair needs of a building is usually sound and worth securing. From the nature of his work, he should know his building more thoroughly than other school officials, and he usually does.

The *health* of the janitor is promoted by:

1. Demanding that the janitor be in good health at the time he is appointed;
2. Providing him with healthful, sanitary working conditions;
3. Providing him with suitable tools and equipment and teaching him how to use them efficiently;
4. Adopting the least hazardous methods of cleaning;
5. Providing for a first-aid kit, easily accessible, and insisting that he secure first-aid at once, when it is needed.
6. Providing him with a suitable room in the basement. This must be well-heated, well-ventilated, never damp, and fitted with enough furniture to permit rest. Dials, telephones, alarm systems and other similar apparatus should be in this room. A small workshop should be nearby or in part of this room. A toilet should be easily accessible, if not immediately off the room. Some recommend that a special shower bath should be provided for the janitor.

7. Making suitable provision for medical care in case of sickness. This may mean no more than being sure that he is under some physician's care. Schools have made little attempt to provide medical service for janitors as yet.

Following are the rules now in use by the school board of Philadelphia, governing leave of absence among school employees:

"Engineers, firemen, janitors, cleaners and watchmen may not be absent from duty without securing a leave of absence from the superintendent of buildings. Such leave must be secured before the absence occurs, unless the circumstances are such as to render advance approval impossible. For all absence, there shall be a full deduction of salary except in those cases for which special provision is made.

"Leave of absence for fifteen consecutive days may be granted July 1 and August 31 of each year, provided the applicant furnishes, at his own expense, a competent person to be in charge of the building continuously between the hours of 8:00 a.m. and 5:30 p.m., every working day during the absence of the applicant.

"For absence due to personal illness there will be a deduction of one-thirtieth of the monthly salary for each of the first three days, and one-sixtieth of the monthly salary for each day thereafter. If said absence exceeds three consecutive school days, the application must be accompanied by a physician's certificate, stating the nature of the illness, and must not extend beyond thirty consecutive days, unless authorized by the board, provided that leave shall not extend beyond one year.

"For absence due to the death of a husband, wife, son, daughter, father, mother, brother, sister, grandfather, or grandmother of the absentee, or by the death of an uncle, aunt, nephew, niece, or first cousin, whose actual place of residence at the time of death is also the residence of the absentee, these facts to be duly certified by the physician in attendance during the last illness of the decedent or otherwise proved, the applicant may be relieved from loss of salary for the period intervening between the death and the funeral, but in no event exceeding four days, including Saturday and Sunday, if those days so intervene; provided, that absence in excess of five additional school days, caused by a delayed funeral, shall be subject to a deduction of one-sixtieth of the monthly salary for each school day's absence. For absence not exceeding one school day due to the attendance of the funeral of any relative, where relief from loss of salary is not provided for, there shall be a deduction at the rate of one-sixtieth of the monthly salary.

"For absence due to religious holidays, there shall be a deduction of one forty-fifth of the monthly salary for each day's absence.

"For absence not exceeding five school days in any school year, due to causes not specified in this rule, but of such nature as to warrant partial relief from loss of salary, there shall be a deduction of one forty-fifth from the monthly salary for each day's absence. For absence due to quarantine or subpoena to court, when properly certified, there shall be no deduction.

"The superintendent of buildings shall have the power to grant leave of absence without loss of salary to applicants for school business, subject to such conditions as he may consider advisable.

"In computing deductions of salary, the monthly personal salary, as authorized by the board, will be the basis for calculation of deduction.

"In computing deductions in salary, any absence shall be counted as not less than one-half day; Saturdays, Sundays, and holidays shall be included in the deductions."

In Minneapolis, the janitor receives the equivalent of one day per month per year for vacation but this time is granted only during June, July and August. In addition, ten legal holidays are granted, except that the building must be maintained at proper temperature at all times. The sick allowance is one day per year for each month of service during that year, but no allowance is made for those employed less than six months.

Rules and regulations. The Minneapolis Public Schools have an unusually comprehensive, clear, concise, attractive book of Rules and Regulations consisting of about 130 pages of information, rules, and directions for performing the various janitorial-engineering services required. The authors recommend a careful study of this book.

RESEARCH ON JANITOR SERVICE

The studies of Reeves (*loc. cit.*) show much originality and thought. *With the permission of Dr. Reeves, his material has been used liberally throughout this chapter.* Reeves' job analyses are an outstanding piece of work.

CHAPTER XV

HEALTH SUPERVISION OF TEACHERS

"A happy, healthy teacher can do much by example alone. The pupil reflects the habits of his teacher."

The school of today makes tremendous demands upon the teacher. In an era of marked activity, this profession is asked to assume greater responsibilities and it is important that because of this situation, no injury be done to the teacher's health. It is fully as important that conservation methods be applied to this group as to pupils; in fact, there is the added reason that the health and physical welfare of the pupil must depend importantly upon the instructor's watchfulness and care; and to properly perform this function, the teacher must be fit physically.

While it was long recognized that definite and positive steps must be made in this phase of health supervision, the important study in 1916 of the Commission on Welfare of Teachers of the New York State Teachers Association under the direction of Dr. Thomas D. Wood revealed actual conditions and pressing needs. This investigation had as objects: (1) to collect a body of data relative to health, living and teaching conditions of teachers in the elementary and high schools of N. Y. state; (2) to call attention to undesirable conditions which might lower the efficiency of teachers and hence, the efficiency of public education; (3) to ascertain opinions of teachers and supervisors regarding conditions favorable and unfavorable to the health and efficiency of teachers; (4) to propose measures which may improve the welfare and efficiency of teachers.

Material was collected in such a manner as to permit free expression of opinion and presentation of evidence without fear of coercion of any sort, however unlikely that might be. Both teachers and supervisors were sent carefully worked out questionnaires. Over two thousand replies from teachers and about one hundred replies from supervisors were received and were from both men and women in both urban and rural schools, thus making the material well-balanced. Various ages were represented from under twenty to over fifty.

The general state of health reported was far from good. Thirty-one per cent felt they were not sufficiently vigorous to meet successfully the continuous strain to which teachers are subject. Of these, two-thirds reported "Energy sufficient for ordinary work, little resistance to colds or periods of extra strain," while one-third of this group reported "chronic ill-health or vitality low," to "inclined to worry over work; daily routine seems heavy." These represented the poorest health groups which should never be permitted in the school room.

Change in condition of health was reported by 30.3 percent of the teachers who considered their health worse than when they began to teach. Many considered themselves more nervous or the same except for nerves.

Health disorders during the five year period preceding 1914–1915 were reported by 79.7 percent.

Minor health disorders were revealed by 82.8 percent; 45.9 percent of the teachers reported nervous disorders, either at the time of the investigation or the five-year period preceding it.

During the two years previous, absence for physical disability was reported by 41.1 per cent.

The menstrual function was reported by 16.7 percent of women teachers as constituting a partial impairment of teaching efficiency. Of the other women in the group two reported regular absence and 124 reported occasional absence due to menses. (One thousand eight hundred and seventy women teachers constituted the whole group of women reporting.)

Comparing the incidence of the various health defects of men and women in all phases, the women reported a poorer health record than the men; using as standards for grouping: (1) general health; (2) worse health than at the time of beginning teaching; (3) health disorders rising during the five year period preceding the investigation; (4) minor health disorders at the time of the study; (5) nervous disorders during either of the above noted periods; (6) absence because of physical debility during the two year period preceding the research; and (7) in the percent of total time lost as compared with the time they were expected to work.

Rural men teachers' reports showed a poorer health record than urban men's reports but the rural women's records showed slight betterment over the urban women's records possibly because the rural women teachers were younger as a class than the urban and had taught fewer years.

An increase in ill health was noted in the older age groups.

As a check to these findings the supervisors' reports were highly confirmatory. They classified about one-third of the teachers as: (1) nervous; (2) irritable; (3) low in vitality; (4) affected with other handicaps. The impairment in 90 percent of the cases could be attributed to ill-health, or unhealthful living and teaching conditions. *It was evident that teachers frequently taught school when they were physically unfitted to attend.*

This last point is of importance since it affects materially the interpretations of two studies of the causes of absences of teachers from duty. The first is Dublin's report on 3,877 cases of teacher-absences in the New York City Schools occurring in the school year 1914–1915. The second is Hart's study of 76,258 cases of teacher-absences in the London schools in the years 1904–1919. Both studies agree in important points.

Teachers lost on the average about eight days per year or about 4.5 percent of their school year. Men were absent less frequently than women.

In considering causes of absence from duty, it must be remembered that such statistics do not necessarily represent the true state of health of the teacher since one teacher may remain at work with exactly the same dis-

ability, impairment, disease and symptoms that another teacher would consider ample reason for absence.

HART'S TABLE.[1] AILMENTS RESPONSIBLE FOR ABSENCES OF TEACHERS

	1904–1914, percent	1915–1919, percent	Whole period, percent	Men, percent	Single women, percent	Married women, percent
Nature of illness						
Pulmonary: throat, colds, influenza	43.2	43.0	43.0	46.0	42.5	42.1
Nervous and mental	14.8	18.7	16.5	12.8	17.4	17.2
Gastric	8.4	7.4	8.0	7.4	7.7	9.2
Rheumatism and synovitis	6.0	5.1	5.6	6.8	4.7	7.0
Infectious and contagious	4.0	3.5	3.8	3.9	4.0	3.0
Debility and anemia	3.7	3.6	3.7	2.4	4.0	3.9
Operations	4.2	4.1	4.2	4.0	4.5	3.5
Heart diseases	1.8	2.8	2.2	2.4	2.5	1.4
Opthalmia	1.6	1.4	1.5	1.3	1.6	1.4
Dental	0.9	0.9	0.9	0.8	1.0	0.9
Menopause and diseases peculiar to women	1.6	1.3	1.5		1.5	2.5
Accidents	3.7	3.2	3.5	5.6	2.9	3.3

[1] Hart, J. Y.: An Investigation of Sickness Data of Public Elementary School Teachers in London, 1904–1919, Journal of the Royal Statistical Society, London, Vol. 85.

Comparison of these figures with the New York State Report shows that in both reports the respiratory and throat diseases were the most common illnesses and were evidently incapacitating in many cases; nervous troubles were also common and disabling. No large number of absences was caused by menstrual troubles, which were infrequently a cause of sufficient unfitness to prevent the teacher being on duty; this is of interest because it is believed that the customary ten days sick allowance per year was to allow one day per month for absence on account of menstrual troubles. Recent industrial and insurance data, also investigations in the Cleveland Public Schools by Carrothers[1] would place the needed sick allowance at $3\frac{1}{2}$ to $4\frac{1}{2}$ days for a school year.

According to the New York State Report, other conditions besides the physical defects which the teachers and supervisors believed importantly affected the health of the teachers were: (1) living conditions, (2) financial conditions, (3) working conditions.

1. **Living conditions** are largely regulated by ability to afford what is desirable. Living conditions reasonably favorable to health must permit good wholesome food; play and recreation out of doors; sufficient sleep and a comfortable room that can be well heated in cold weather. The difficulty in securing good teachers for rural work is in part, because of the type of boarding places available.

School boards and communities should be, and are, responsible for furnishing suitable living places for teachers and fifteen states have so far authorized school districts to build and operate homes for teachers. In rural districts, the teachers' home (sometimes called Teacherage) can be, and

[1] Carrothers, G. E.: The Physical Efficiency of Teachers, Bureau of Publications, Teachers College, New York, N. Y., 1924.

in some instances has been made a demonstration center for good housekeeping, sanitation and improved conditions for healthy living.

The New York State Report showed that two kinds of living conditions were thought by teachers and supervisors to have a serious effect on teachers' health; (*a*) poor boarding places (including poor food, poor and cold rooms) definitely affected health in about 20 percent of the cases and affected *efficiency* in about 3 percent.

(*b*) Too many demands outside of school duties; loss of sleep; and lack of outdoor exercise.

Violations of the health laws included teaching night school, and outside cares, as well as what one might consider voluntary breaking of the rules of health. House work was often required of those living at home.

2. Financial conditions. Teachers frequently had dependents; others were attempting to make some financial provision for the future. This made an inadequate salary more insufficient for the teacher's needs and necessitated outside work to supplement the income. Such was even more true of the rural group. The extra work was done during the summer, during the school year, or both; it consisted of teaching (especially by urban group); manual work (rural group); musical or business positions; sewing and other positions which might be open. This work averaged 7.7 hours a week for urban teachers and 10.5 hours per week by rural teachers with women averaging 8.6 hours and men 11.0 hours.

It is evident that insufficient salary necessitates not only extra work but also various home duties, poor living conditions, little social life and recreation.

3. **Unsatisfactory working conditions** were of two different types; (*a*) Physical conditions, including defective ventilation, heating or lighting; dirt and dust in school room; janitor work demanded of teachers; poor or no drinking water; cold lunch; overcrowded school room; wretched toilet facilities; lack of place to rest at noon; teachers' boarding house too far from school.

b. Administrative conditions considered by teachers detrimental to health included excessive demands of school work; too much work; overcrowded school rooms; exhaustive nerve strain of work; poor discipline of principal; too much school work both in school and outside of school, such as too much correcting papers at night, too long hours after school hours, over crowded curriculum, clerical work, lack of sabbatical year, no time for rest during school hours.

Relation to the administrative officers was considered by teachers to be productive of many difficulties, including the character of supervision and administration; especially criticism of various types, lack of sympathy, uninspired leadership, unpleasant relations with superior officers—thus producing worry over school matters.

4. **The shortcomings of the pupils** resulted in (*a*) difficulties from subnormal scholars, (*b*) children unprepared for grade, (*c*) irregular attendance and lack of interest, (*d*) sometimes contacts with uninterested, uncoöperative parents.

The Recommendations of the New York State Commission are of such importance and so comprehensive that they are printed here.

Recommendations of Commission on Welfare of Teachers

I. Recommendations relating to improved administration and legislation affecting the welfare of teachers.

(*a*) Improvement of sanitary conditions in schools, including provision in school for rest place and rest time for the teacher.

(*b*) Decreased demand, where needed, upon time and strength of teachers for keeping and writing reports; for other avoidable clerical work; and janitorial service. Schools would profit much from adopting the principles and practicing the methods of business efficiency. It is poor economy and a short-sighted policy to require teachers to do work which somebody else would do better and with less effort. Those entrusted with school management are earnestly recommended to put more thought upon the problem of using the abilities of teachers to the best advantage, and to bear in mind that an important factor in this situation is intelligent conservation of teachers' strength, enthusiasm, and cheerful mental outlook.

(*c*) Improvement of standards for supervision and criticism of teachers. Neither teachers nor those in administrative positions have adequate appreciation of the detrimental effects of destructive criticism and unsatisfactory interviews. The importance of this factor in our educational system cannot easily be over-estimated. It is a problem for those occupying administrative positions; and it should be chiefly their task to face and overcome the difficulties in the situation.

(*d*) Reduction in size of classes when the number is excessive. This action is quite as important for the benefit of the pupils as for the welfare of the teacher. When we realize how many of the defects of our present educational system are due directly to lack of sufficient individual attention to pupils, reduction in the size of classes seems doubly urgent.

(*e*) Minimizing the number of troublesome pupils in schools by:

1. Examination of pupils for physical and mental defects;
2. Fullest possible correction of defects;
3. Segregation of mentally defective pupils in special classes.

(*f*) Better provision of facilities, especially in cities and large towns, for physical exercise and recreation of teachers. Sociability among teachers should be encouraged and fostered whenever possible. Principals and superintendents could have a definite influence here if they chose to exert it. It is quite common for teachers to feel that their superior officers disapprove of teachers spending time in recreation, especially in the afternoons. And, unfortunately, the attitude of some of those in administrative positions seems to justify this assumption. But generally, teachers are mistaken on this point; and it is urged that principals and superintendents make definite recommendations to their teachers in regard to healthful recreation.

(*g*) Definite efforts to provide better boarding places for teachers. Sixteen percent of teachers report "Better Food" as a factor that would contribute to the improvement of their health and efficiency and many report chronic colds due to cold rooms in boarding places.

(*h*) Records of teachers' absences should be kept in schools—causes and length of absence; age, sex, and grade of teacher. Such data would be of the greatest value in any study of teachers' health and efficiency.

(*i*) Standardized provisions for health requirements—including health investigation, supervision and training of students— in normal schools. Many of the teachers' violations of the laws of health are to be explained by thoughtlessness and carelessness, as well as by ignorance. Proper emphasis in normal schools upon health training would do much to correct this serious defect in the personal and professional habits of many teachers.

(*j*) Teachers' certificates to be conditioned upon physical and temperamental as well as mental and technical qualifications for teaching. In most school systems those entrusted with appointment of teachers are expected to use judgment within certain limits, in the matter of selection. Eleven and nine-tenth percent is too large a proportion of teachers to be reported "unfit from the beginning" for the profession. Greater care should be taken

at the time of selection of teachers and often better judgment should be applied to this important task.

(*k*) Provision by educational authorities for health supervision and guidance of teachers with periodic health examination and advice regarding matters of personal welfare and efficiency. Particular attention should be given in the health examination and advice, to the health characteristics and problems, of particular importance to teachers.

1. Decrease of worry of teachers regarding financial matters by:
   1. More adequate provision for pensions.
      (*a*) Teachers express strong feeling against the injustice under present practices, of being forced to make contributions to pension funds which are not returned in case of withdrawal or dismissal.
      (*b*)[1] Many are opposed to pensions because of the instability of the fund. No pensions law should be passed that does not provide for a system founded on a sound actuarial basis;
      (*c*) A few teachers have expressed disapproval of the number of years' teaching required in order to become eligible for a pension. They say that very few could stand the strain of teaching under modern conditions for as long as 30 years and that, therefore, the required term of service should be shortened to 25 or 20 years.
2. Arrangements for health insurance, sick leave, etc., if needed during term of service.
3. Increase of teachers' salaries in the lower schedules. This is highly important—in some cases to enable teachers to maintain a decent standard of living, and in many cases, to enable them to meet their present responsibilities and to provide for old age.

II. Recommendations relating to improved understanding and conduct of teachers with reference to conditions, affecting their health and welfare, which are subject to their control.

(*a*) Better appreciation of the opportunities and responsibilities of the profession as a field of social service; with unselfish devotion to aims and goals of teaching.

(*b*) A cultivation, in general, of the professional point of view as a wholesome rationalizing influence to counteract an over-conscientious and emotional attitude toward one's work.

(*c*) Serious study of the art of getting along with superiors. Development of the attitude that welcomes constructive criticism. Teachers should be willing to meet their superior officers half-way in their difficult task of giving constructive help and criticism to the teachers under their supervision.

(*d*) Rational hygienic program of life, with sufficient attention to sleep, rest, exercise, recreation, etc.

1. Willingness to neglect things of lesser importance for the sake of conserving health.
2. Appreciation of the importance of seeking medical help whenever needed. Teachers are urged to obtain the best available health advice not only for the sake of curing ills, but even more for the sake of maintaining the highest attainable level of health and efficiency.
3. Rigid adherence to the habit of devoting a part of every day to healthful recreation. This is the part of a teacher's program that should never be neglected. The recommendation to teachers made by an urban supervisor to use the hours between 4 and 6 p.m. for recreation and outdoor exercise is sensible advice and should be followed with few exceptions.
4. Enthusiastic and diligent devotion to some avocation (hobby).
5. An appreciation of the efficiency value of a good boarding place. Within reasonable limits, the margin of money spent for improved conditions of living, is indicative of an understanding of the principles of economy and efficiency.

(*e*) Courage to make reasonable requests; and greater coöperation among teachers for the purpose of commanding respect for requests made.

(*f*) Willingness and courage to leave the profession if health is impaired or work is unsuccessful.

[1] The present very general change from pensions to insurance and annuity provisions for disability and retirement needs of teachers (the cost of such provisions to be shared by teachers and educational authorities), seems to furnish conditions more consistent with the dignity and independence of the teachers and more satisfactory to all concerned.

There is ample reason to believe that this report[1] has been an important factor in improving conditions for teachers.

The far-seeing school system will have to install or perfect plans for more watchful care of the health of its teachers. Such plans will be based on the needs outlined in the New York State Report which may be summarized as

1. Favorable physical conditions for teaching;
2. Health service; to keep the well in good health and restore the ill to duty with all reasonable dispatch; this should include provisions for reasonable absences because of sickness;
3. Removal of all possible worries from sources which may be controlled including a suitable pension plan;
4. Periodical opportunity for the sabbatical year;
5. Provision for recreation and physical comfort.

FUNDAMENTALS IN HEALTH SUPERVISION OF TEACHERS

(*A*) **Favorable conditions for teaching** include (1) all environmental conditions considered favorable to the health of pupils; (2) a comfortably furnished teachers' rest room for women teachers and another for men teachers, provided with suitable toilet facilities, and frequently with means of warming food if the teacher must have lunch at the school and no school lunch is available; (3) rest periods during the day (and these actually improve efficiency); (4) assuring the teacher a warm lunch if she remains at school during the lunch period.

Scoring the school building by some approved scheme such as the Strayer-Englehart method will determine effectively where physical conditions are favorable for the teacher as well as the pupil. One point frequently overlooked is that in many school rooms the light shines directly in the teacher's face, regardless of how correctly it may be reaching the pupils' desks.

(*B*) **Health service** is divided into several phases: (1) When the teacher first begins work in a school system, she should be expected to furnish proof of her physical ability to fulfill her part of her contract. Such evidence is usually demanded by school systems. This proof may be through her own physician's certificate with or without the filling-out of a special history and examination form by this physician; or the school may provide for this examination through its own physicians. Many teachers object to giving a thorough confidential history to the schools and most prefer to have examinations made by their own physicians at present. The best practice would be to furnish each teacher with a thorough health examination upon her beginning her work in any school system and to recommend any corrective program or other treatment which seemed necessary.

Estimates could be made of such a teacher's probable health in the future. It might not be necessary to refuse to employ many handicapped teachers; it would surely be possible to help them meet their handicaps most adequately.

[1] Health of Teachers, Brief Report of Commission on Welfare of Teachers, New York State Teachers' Association, pp. 15–17, 1916.

Carrothers[1] has recommended that applicants be graded as follows:

"1. (*a*) Those physically well and strong who may be considered as available for almost any sort of assignment.

(*b*) Those with minor defects which for the most part can be remedied by personal attention. Assignment to be carefully considered until defects are corrected.

(*c*) Those with defects of a more serious nature, yet remediable. Only certain types of work are to be open to members of this group.

(*d*) Those who are for very definite reasons not fitted to engage in teaching. This does not mean that there are not other vocations in which they can render very effective service.

2. That a probationary health period of one year be established for all who are not in Class (*a*), and that a re-examination be given at the end of the year."

Forms for History and Examinations of Teachers

Following forms are used for Teachers' Health Records:

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE DEPARTMENT OF EDUCATION
STATE MEDICAL INSPECTOR OF SCHOOLS
SCHOOL HEALTH SERVICE

PHYSICAL EXAMINATION OF TEACHER

.....192

To the Superintendent of Schools:
Board of Education, Trustee:[1]

I have examined .....,

a teacher in .....public school in the { city[1] / town / village } of .....

and do (not)[1] consider him (her)[1] in fit physical condition properly and safely to perform the duties of such position, because of .....

Respectfully yours

.....M. D.
Medical Inspector of Schools

[1]*Cancel words not applying*

Fig. 224. New York State white card $3\frac{1}{2}'' \times 5\frac{1}{2}''$. Overcomes the objection sometimes advanced against schools keeping teachers' physical records containing notes or specific physical facts and defects.

[1] *Loc. cit.*

PITTSBURGH PUBLIC SCHOOLS

Medical Examination Certificate

Date . . . . . .

Name . . . . . *Age* . . . . .

Residence . . . . . *School* . . . . . *Grade* . . . . .

Height . . . . . *ft.* . . . . . *in.* *Weight* . . . . . *lbs.*

Nutrition: *Very Good* . . . . . *Good* . . . . . *Fair* . . . . . *Poor* . . . . . *Very Poor* . . . . . .

Previous Illness . . . . . .

History of Injuries . . . . . .

Surgical Operations . . . . . .

Glandular Enlargements: *Cervical* . . . . . *Thyroid* . . . . . .

Anemia . . . . . *Nervous Disorder* . . . . . .

Pulse . . . . . *Temp.* . . . . . *Resp.* . . . . . .

Vision: *Right Eye* 20 *Left Eye* . . . . . 20 .

Hearing: (*Watch Tick*) *Right Ear* . . . . . *ft.* *Left Ear* . . . . . *ft.*

Decayed Teeth . . . . . *Adenoids* *Orthopedic Defect*

Tonsils: *Enlarged* . . . *Imbedded* . *Diseased* . . . .

Heart: *Valvular* . . . . . .
Functional Disorder . . . . . .
Normal . . . . . .

Lungs: *Area of Consolidation* . . . . . .
Area of Excavation . . . . . .
Area of Impaired Resonance . . . . . .

Days absent because of illness previous school year . . . . . .

I hereby certify to the above statements and to the fact that . . . . . .

. . . . . *is neither mentally nor physically disqualified, by reason of tuberculosis or any other chronic or acute defect, from successful performance of the duties of a teacher.*

. . . . . *M. D.*

Office . . . . . .

FIG. 225. Pittsburgh 8½″ × 11″ yellow sheet. Note emphasis on heart and lung examination.

MEDICAL DEPARTMENT

Seattle Public Schools

HISTORY:

Name .....Age .....Born (Country or State).....

A. How long have you taught school? .....

B. Give place and length of service .....

.....

.....

C. Have you been absent on account of illness during the past year?.....

Discuss briefly nature of such illness .....

.....

.....

.....

.....

.....

Have you had Scarlet Fever?.....Diphtheria?.....Measles?.....Whooping Cough?.....Chicken Pox?.....Mumps?.....Sore Throat?.....

When last successfully Vaccinated?.....

What, if any, serious illness have you ever had .....

.....

.....

How many hours sleep do you require in twenty-four to maintain your normal standard? .....

I certify upon honor that the above statement is correct.

..... 19.....

.....

(Over)

FIG. 220.

PHYSICAL EXAMINATION

Doctor:

The Medical Department of the Public Schools is endeavoring to be of benefit to the school children and helpful to their teachers. You can aid us if you will by a frank statement regarding this teacher's physical condition.

When completed please mail direct to the Medical Inspector.

IRA C. BROWN, M. D.,
School Medical Inspector
901 7th Avenue.

.....19.... .....M. D.

(Over)

FIG. 226. (*Continued.*)

FIG. 226. Seattle. Both sides of manila 5″ × 8″ card leaves written details of physical exammination optional with examiner. An excellent idea if examiners coöperate with the school executives. Used for all school employees. Note type of history.

OAKLAND PUBLIC SCHOOLS
OAKLAND, CALIFORNIA

PHYSICAL EXAMINATION OF TEACHERS

(The applicant will please fill out the blanks below)

NAME _____ *Age* _____

Address _____ *City* _____ *State* _____ *Weight* _____ *Height* _____

Born _____ _____ _____ _____ _____
(Day) *(Month)* *(Year)* *(Town)* *(State or Nation)*

Have you ever changed occupation or residence on account of health? _____

Are you closely associated with anyone having tuberculosis? _____

Has either of your parents or any other member of your family had tuberculosis? _____

When and with what were you last seriously sick? _____

Name of attending physician _____

His address _____

Applicant's Signature _____

(The following blanks are to be filled in only by a regularly licensed physician)

Has the applicant ever had any of the following diseases? Answer yes or no:

Smallpox _____ *Impairment of hearing* _____

Severe or protracted headaches? _____ *Inflammatory rheumatism* _____

Persistent cough _____ *Palpitation or disease of heart* _____

Spitting of blood _____ *Surgical operation* _____

Pneumonia or any disease of the lungs _____ *Does he use tobacco, opium or any narcotics?* _____

Vertigo, dizziness or unconsciousness _____ *Does he use intoxicating liquors?* _____

Impairment of eyesight _____ *Is he successfully vaccinated?* _____

Size of chest at rest _____ *Expiration* _____ *Inspiration* _____

Examination of chest _____

Examination of heart _____ *B. P.* _____ *Pulse* _____

Condition of teeth _____

Throat _____

Sight O. D. 20 _____, *O. S. 20* _____

Hearing (Spoken Voice at 20 ft.) Rt. _____, *Lt.* _____

General Appearance _____

Further statement of physical condition _____

_____

_____

_____

Please underline the word denoting applicant's health: Excellent—Good—Satisfactory—Fair—Poor.

Date of Examination _____ *Signature* _____

State license number _____

Address _____

City _____

(Space below reserved for official approval)

Approved _____ *19*____

Director Health Development Department.

FIG. 227. Oakland, Cal. White sheet $8\frac{1}{4}'' \times 11''$. Note interest in tuberculosis in history; also points in physician's examination.

(2)[1] The second phase of health service for teachers is thoroughly to arouse the interest of the teacher in her own physical welfare. This should begin in training institutions. This interest may be fostered through (a) various health scores, (b) through reading lists suggesting suitable reliable literature, and (c) through her interest in teaching health to others. She

[1] See page 519, B (1).

should be taught how to keep well. She should be encouraged and assisted in forming hiking clubs and other wholesome recreation groups. The following Health Scale has proved valuable:

Personal Health Standard and Scale

FOR ADULTS

There are three ideas or standards of personal health for the individual:

1. The ideal one has of *health*, the perfect health that one imagines and would like to have. This is never wholly attainable.
2. The *health* that one actually has.

   This is often far below the possible and the practicable for the individual.
3. The *health* that one might have with the knowledge, appreciation and realization of health that are reasonably available for the individual.

A personal health survey or inventory should show the relation of one's health to an optimum standard of health for one's type (age, occupation, etc.)

A scale for measuring and recording personal health should give primary prominence and emphasis to the health improvement one makes in lessening the distance from one's actual to one's attainable health.

This health rating scale is suggested for use by mature, responsible adults who may rate themselves on some items, and who in other items, would be rated by a physician or some other health examiner.

A yearly health examination is advisable for adults and children.

THOMAS D. WOOD, M. D.

Revised October, 1925.

Copyrighted

FIG. 228[1] (*A*). Front cover of the Wood Personal Health Standard and Scale.

[1] Published by the Bureau of Publications, Teachers College, New York, N. Y.

Fig. 228 consists of four parts *A*, *B*, *C*, and *D*, each of which represents one page of a four page folder.

HEALTH SCALE

Personal health and efficiency involve certain subjective and objective factors and evidences.

		Date	Date	Date
I. *Subjective* factors and evidences of health.				
a. Enjoyment and zest in work and play.	1			
b. Feeling of being rested and refreshed in morning and not more than wholesomely tired at bedtime.	1			
c. General attitude of cheerfulness and confidence in relation to life and freedom from *persistent* worry and anxiety.	1			
d. Good appetite and relish for food.	1			
e. Freedom from regularly recurring or persisting physical pain and discomfort.	1			
f. Ability to work with comfort and satisfaction 8 hours a day, five and a half, or six days in the week. (44-48 hours a week.)	1			
II. *Objective* factors and evidences of health.				
A. Hygienic program.				
1. Diet.				
At least one cup of milk daily.	2			
At least three large servings of greens (cooked or uncooked) in a week.	2			
Fresh fruit once a day.	1			
Some vegetable other than potatoes every day.	2			
Some food necessitating mastication every meal.	1			
Eating no food between meals.	2			
Eating sweets, if at all, only at end of a meal.	2			
Drinking at least four glasses of water daily.	2			
Eating three regular meals daily.	1			
2. Devoting ½ to 1 hour daily to vigorous physical exercise outdoors, in gymnasium or swimming pool (at least 3 hours exercise a week outdoors). Exercise should be vigorous enough to cause deep breathing.	3			
3. Daily tonic bath and skin friction of type suitable for the individual.	2			
4. Brushing teeth at least twice daily in approved way.	2			
5. At least one satisfactory bowel movement daily, with regular attention to this function.	3			

FIG. 228 (*B*). Left inside page.

		Date	Date	Date
6. Giving 8 to 9 hours in bed, and to sleep, daily.	3			
7. Lying down and resting 10-20 minutes between 11 A. M. and 2 P. M. each working day.	1			
8. Devoting 1 to 2 hours daily (in addition to daily exercise) to social recreation or recreative reading, or other recreative occupation.	3			
9. Keeping one full day each week for rest from regular work.	3			
10. Using at least two evenings or afternoons a week, in addition to the seventh day, for non-professional activity. (Occasional use of one or both of these evening or half day periods, for professional activity, might be justified in an emergency.)	3			
11. Dressing hygienically.				
Clothing protecting against sudden changes in temperature.	2			
Shoes sensible in shape, guarding against marked changes in height of heels.	2			
12. Keeping weight within standard range for health, not more than 10% below nor 15% above standard for age and height, considering standard at 30 best standard for later ages.	3			
B. Freedom from remediable health handicaps and defects including:				
1. Heart defects.	3			
2. Thyroid defects.	3			
3. Lung defects.	3			
4. Defective posture.	3			
5. Defective teeth.	3			
6. Eye defects.	3			
7. Defects of ears and hearing.	3			
8. Diseased tonsils.	3			
9. Defective nutrition.	3			
10. Skin disorders.	3			
11. Weak arches.	3			
12. Visceroptosis.	4			
13. Muscles undeveloped.	3			
C. Freedom from susceptibility to those diseases for which specific immunity is practically obtainable by vaccination. —Smallpox, Typhoid, Diphteria.	3			
D. Freedom from susceptibility to those infections (e. g. colds) which result from unhygienic habits of living and remediable health handicaps.	3			
E. Freedom from metabolic errors (evidenced by urinalysis) and other less obvious defects which are only revealed by regular, thorough physical examination.	3			
	100			

FIG. 228 (C). Right inside page. Note comparison of the individual's score with 100 per cent. Part B is determined by the physical examiner. Record is cumulative.

NAME.....

Date												
Age												
Height												
Weight												
Additional records of weight if needed												

WEIGHT TABLE FOR WOMEN

Height	Age 19 years	20	21-22	23-24	25-29	30-34	35-39	40-44	45-49	50-54
4 ft. 10 in.	104	106	108	110	113	116	119	123	126	129
4 ft. 11 in.	106	107	109	112	115	118	121	125	128	131
5 ft.	112	112	113	115	117	120	123	127	130	133
5 ft. 1 in.	116	116	116	118	119	122	125	129	132	135
5 ft. 2 in.	118	118	119	120	121	124	127	132	135	138
5 ft. 3 in.	120	121	122	123	124	127	130	135	138	141
5 ft. 4 in.	123	124	125	126	128	131	134	138	141	144
5 ft. 5 in.	126	127	128	129	131	134	138	142	145	148
5 ft. 6 in.	130	131	132	133	135	138	142	146	149	152
5 ft. 7 in.	135	135	135	137	139	142	146	150	153	156
5 ft. 8 in.	138	138	139	141	143	146	150	154	157	161
5 ft. 9 in.	142	142	142	145	147	150	154	158	161	165
5 ft. 10 in.	144	144	145	148	151	154	157	161	164	169
5 ft. 11 in.	146	147	149	151	154	157	160	164	168	173
6 ft.	150	152	154	156	158	161	163	167	171	176

WEIGHT TABLE FOR MEN

Height	Age 19 yrs.	20	21-22	23-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
5 ft.	111	112	114	118	122	126	128	131	133	134	135
5 ft. 1 in.	116	117	118	121	124	128	130	133	135	136	137
5 ft. 2 in.	122	123	124	125	126	130	132	135	137	138	139
5 ft. 3 in.	127	128	128	129	131	133	135	138	140	141	142
5 ft. 4 in.	130	131	132	134	135	136	138	141	143	144	145
5 ft. 5 in.	134	135	136	137	138	140	142	145	147	148	149
5 ft. 6 in.	139	140	141	142	143	144	146	149	151	152	153
5 ft. 7 in.	142	143	144	145	146	148	150	153	155	156	158
5 ft. 8 in.	147	148	149	150	151	152	155	158	160	161	163
5 ft. 9 in.	152	153	154	155	156	158	160	163	165	166	168
5 ft. 10 in.	155	156	157	158	159	162	165	168	170	171	173
5 ft. 11 in.	159	160	161	162	164	166	170	174	176	177	178
6 ft.	163	164	165	166	168	172	176	180	182	183	184
6 ft. 1 in.	167	168	169	171	173	178	182	186	188	190	191
6 ft. 2 in.	171	172	174	176	179	184	189	193	195	197	198
6 ft. 3 in.	175	175	178	181	184	190	195	200	202	204	205
6 ft. 4 in.	178	180	183	186	189	196	201	206	209	211	212
6 ft. 5 in.	183	185	188	191	194	201	207	212	215	217	219

In ascertaining height—measure yourself in shoes; stand erect, and press measuring rod down against scalp. Weigh yourself in indoor clothing and shoes. If shoes have sensible heels, subtract one inch for height; if heels are "high," subtract two inches.

Your standard of weight is found where your height and age meet.

In keeping a health record, weigh yourself once a week only and regularly on the same scales and at the same time of day, with the same relative weight of clothing each time.

Up to 20 years of age it is advantageous for health to weigh as much as the standard in the table for height and age.

Above the age of 30, *overweight* is decidedly disadvantageous to health.

For a person above 30, the best weight standard is given by the table in the 30-34 year column.

The above tables are based upon Weight Tables for Girls and Boys prepared by Baldwin and Wood and upon Life Insurance Tables.

FIG. 228 (*D*). Wood's Personal Health Standard, and Scale, used in Teachers College Health Service. Back page.

The State of New York has an excellent form entitled "Health Suggestions to Teachers," and obtainable from the state educational authorities at Albany, N. Y.

(3)[1] A definite and fair policy in regard to absences for illnesses. This must include:

(*a*) A certain period, often ten days, which the teacher may be absent from duty yearly without loss of pay. This should not mean that all teachers should be permitted to be absent from duty for this number of days, unless necessity required this. In this connection Carrothers[2] suggests: "that all teachers absent more than ten days during the year be given a re-examination, accompanied by special instructions in the care of personal health. Free examination for any teacher at any time." This plan markedly decreased teacher absences in Cleveland. The authors of this book believe such service ought to be available for *all* school employees. "That[2] boards of education control the health and absence situation of teachers; (*x*) to see that teachers who desire to remain at their posts when physically unable to perform effective work are required to take time off for recovery, and (*y*) to see that teachers with a major interest outside the profession are required to perform their professional duty to the best of their ability."

(*b*) Provision whereby experienced employees shall be insured a reasonable income during their total annual time of illness.

(*c*) Assurance that the sick teacher will have early medical attention. It may be necessary to have skilled medical and nursing service available for teachers, just as such service is provided in industry.

New York City has recently approved a plan creating a special staff of physicians to care for sick teachers. This is a far-sighted policy especially in the larger cities. Philadelphia, under Dr. Cornell's direction, is ready to provide periodic health examinations for school employees.

In general it may not be necessary for the school system to provide medical care for its sick teachers but it should be sure that the teachers have such care. For this reason absences from duty for sickness should usually be allowed with pay only when a physician's certificate, that the teacher has been under his care, is presented. This is not to force medical attention upon the teacher but to make sure that she will secure medical services because her absence from duty implies that professional attention is desirable especially since her return to duty will usually be facilitated and because danger of serious illness developing from mild cases is less likely. Special exception might be made for cases of dysmenorrhoea, but these should be comparatively few as causes for absence from duty.

(4) Thorough physical examination before granting tenure. The form to be similar to that used in the first examination. Comparison of the two records affords an important index (*a*) of future health, and (*b*) of the physical effect of the teacher's professional work.

(5) Yearly health examinations are needed by the teacher especially, because of her indoor life and the constant strain on her nervous system. The school system may not be required to provide for this periodic health

[1] See B(1), page 519 and (2), page 524.
[2] Carrothers, *loc. cit.*

examination, especially if the family physician is available to do so. It is advantageous however for the school authorities to provide uniform standards for health examinations and health supervision of teachers. At present health examinations are made only when life insurance policies are taken out although certain life insurance policies now provide, in the premium, for a yearly health examination of a fairly comprehensive nature.

Such health service is desirable but the teacher should not be compelled to accept it; she may prefer to receive the equivalent from physicians of her

The Board of Public Education---Pittsburgh

ABSENCE CERTIFICATE

.....192.....

I hereby certify that my absence for ..... days, namely,

.....

during the school month ending ....., 192....., was

on account of { personal illness / death of my* / quarantine } ....., and that, under the rules of the Board,

I am entitled to $.....pay for said time.

*Said ..... { was / was not } a permanent member of my household.

.....
Teacher

Approved: .....School

.....
Principal

PHYSICIAN'S CERTIFICATE

(To be filled out in case of absence for five (5) days or more).

I hereby certify that.....during the time set forth in the above certificate, was ill with....., and in such physical condition during all of the time as to render h..... unfit to perform h..... regular duties as a teacher.

.....M. D.

QUARANTINE CERTIFICATE

I hereby certify that .....residing at .....was quarantined and not permitted to attend school from....., 192..... to....., 192.....through the quarantine in the same premises of.....
(Name of Patient)

attended by..... as a case of.....
(Name of Physician) (Character of Disease)

.....
Director, Department of Health

DEPARTMENT OF HYGIENE CERTIFICATE

The duration of the quarantine (.....days) as recorded in the above case is herewith certified to as the minimum possible time of quarantine under the requirements of the State and City Health authorities.

.....
Director, Department of Hygiene

NOTE: { This certificate with required information and signatures to be submitted to the Principal in time to file with pay roll. / This certificate MUST be filed by the Principal at the office of Chief Accountant on pay roll days.

FIG. 229.

ABSENCE RULE

ADOPTED BY THE BOARD MARCH 23, 1920.
EFFECTIVE AS OF MARCH 29, 1920.

ARTICLE XVI — Section 12 (a). The Board may authorize payment of one-half of the salary of any teacher or any principal's clerk for the time of absence when caused by personal illness not to exceed a period of more than thirty (30) school days in any one year (September 1—June 30). Teachers and clerks to principals shall receive full pay for absence caused by quarantine for the period of the quarantine. Teachers and clerks to principals shall receive full pay for not to exceed three (3) days on account of absence caused by death in the immediate family or household and not to exceed one (1) day to attend the funeral of certain other relatives.

Absence caused by personal illness for less than five (5) days at one time shall be certified by the teacher and endorsed by the principal; in case of absence for five (5) days or more, a physician's certificate shall be presented.

Absence caused by quarantine shall be certified by proper officers of the Department of Health and approved by the Director of the Department of Hygiene. A teacher is absent on account of quarantine when he or she is physically able to perform his or her duties, but is prevented by either suspect quarantine or contact quarantine. In the event of quarantine, the Board will pay only for the shortest period necessary to be released from quarantine by removal from the quarantined building, or otherwise, as may be directed by the Head of the Department of Hygiene. When the teacher is ill with a contagious disease and a quarantine is established by reason of such illness, the Board will pay as for personal illness.

Pay for absence for not to exceed three (3) days on account of death in the immediate family shall apply to absence caused by death of father, mother, brother, sister, husband, wife, child or parent-in-law, whether a member of the teacher's household or not. Pay for absence will also be allowed for not to exceed three (3) days on account of the death of any other relative who is a permanent member of the teacher's household. In no instance will pay be allowed for absence caused by death before the day on which the death occurred or after the day of the funeral.

Teachers and clerks to the principal shall receive full pay for absence for a period of not to exceed one (1) day to attend the funeral of a grandparent, grandchild, brother-in-law, sister-in-law, uncle, aunt, nephew or niece.

FIG. 230.

FIGS. 229, 230. Pittsburgh. $8\frac{1}{4}'' \times 11''$ yellow sheet. Note the different types of certificates required. Absence Rule printed on back of form.

own choice and she must be permitted to do this, although she cannot expect such service free. Most teachers belong to the great middle class, for whom the poorest medical service is available at present. The middle class do not care to seek the free clinics, nor can they really afford the expense of a private physician except in times of great necessity. As a result mild illnesses may become severe through failure to call a doctor because of an attempt at economy on the part of the patient. The far-seeing school system will make sure that its teachers are spared such unfortunate experiences.

(*C*) In the interests of efficiency, if for no other reason, *all possible sources of worry must be removed.* Those worries which can not be eliminated will tax the teacher enough. Worries are from many sources, a few of which have been discussed.

If fatigue can be avoided, not only will efficiency improve but the tendency to worry will be lessened, since exhaustion results in a state of mind most conducive to worrying. Goldmark and Lee in their study of Fatigue and Efficiency in industries formed certain conclusions which apply to the teacher as well as the industrial worker: Fatigue of three types was found physical, nervous, and psychic. Women were found to have higher morbidity than men when engaged in the same occupations and were found to be absent longer for disease. An optimum period of work existed for different tasks and the greatest continued efficiency resulted from regulating the work-load by this. Excessive demands upon nervous energy to tide over a temporary

situation resulted in an abrupt drop to a lower plane of efficiency. Specific effects of fatigue upon the industrial group were:

(*a*) Heightened infant mortality, (*b*) lowered birth rate, (*c*) an impaired second generation, (*d*) nervous disorders arising from industrial strain and overpressure, often nervous breakdowns, (*e*) a general predisposition to disease.

Interpreted in terms of teacher's efficiency, emphasis must be placed upon the nervous fatigue as the most common, since the class-room duties involve more nervous strain than physical demands. Terman maintains that the teacher develops what is really an occupational neurosis.

Following are suggestions which may result favorably: (1) Supervision should be friendly and constructive.

2. Many problems from troublesome pupils may be wholly or partly solved through the physical and mental examinations now given in the schools and through placing suitable children in special classes which meet their particular needs. Some children are more easily handled by the teacher because of her increased understanding of her pupils obtained from these modern tests.

3. The teacher's capacity for work should be well understood and demands upon her regulated by this. Regardless of the ambitions of the school system, successful educational results depend markedly on dollars and cents spent (even if the teachers are under inspiring, efficient leadership).

On the other hand, the teacher must take her place in the rush of the present day. She should expect to provide adequate service for her pupils and should be prepared to make more comprehensive, complete, satisfactory reports than previously. She will benefit more than anyone from such work because the purpose for demanding it is usually the consideration of some improvement.

4. The salary question must be met liberally. The pay should make it unnecessary for the teacher to seek work outside her school duties, and should permit her to take full advantage of her hours of rest. Frequently she will have to provide for dependents and for her own old age, the latter sometimes through pension funds, more satisfactorily by insurance and annuity provisions, the premium expense of which may very properly and justly be shared equally by the teacher and the school administrator. Dependents and the thought of meagre provision for old age compel worries and sacrifices which result in seriously impaired efficiency.

(*D*) *The sabbatical year*, or a leave of absence for a whole year at half pay or half a year with full pay, one year in seven, affords opportunity for rest, recreation, or renewed inspiration through courses at some educational center. The advantages of the sabbatical year and tenure are found in lowered turn-over of teachers as well as more enthusiastic attention to duty.

(*E*) *Recreation* is needed and the teacher should have time and funds for it. She may receive much benefit from playing various games with her pupils at the school but in addition, she should be able to indulge in ample out door exercise. The wise teacher will not exhaust herself with too many social duties and engagements which will, if continued, prevent her from ful-

filling her school duties. On the other hand, the school has not the right to attempt to dictate how the teacher shall spend her hours of recreation and rest provided customary social standards are observed.

Living conditions must be satisfactory and food must be good. The "creature comforts" must be assured for the teacher.

Many secure recreation through ability to indulge "little whims" and the teacher should be financially able to afford reasonable pleasures of this sort.

(*F*) Some *vocational guidance* may be necessary. It seems wisest that this should be done in the teacher-training institutions as far as possible. Nevertheless, adjustments may be made at opportune times, *e.g.*, when a teacher has shown marked ability in one line of work, she may be encouraged to specialize in it, or the teacher may be placed as far as possible in grades, and among social groups where it seems probable that she will work most effectively. Frequently such changes can be made with the thorough cooperation and interest of the teacher involved.

Terman's[1] suggestions may be summarized as follows:

1. Fit the teacher to the grade of instruction, since there can be no single ideal teacher personality.

2. Fit the teacher to the subject. Too many teachers have drifted into their special departments.

3. Adapt the teacher to the sex of the pupils, since few teachers succeed equally well with boys and girls.

4. Select teachers for special schools, since special problems spur some teachers to their best efforts.

5. Recognize that the spirit of research and the love of teaching may, but do not always, exist together.

6. Realize the teacher's attention type, *i.e.*, whether she can teach best amid the eddies of distraction of high school or grade instruction or amid the quiet preparation and uninterrupted delivery of lectures in the university.

7. Determine the teacher's emotional wealth or emotional poverty, since the teacher teaches with her emotions as much as with her instinct.

8. Learn the teacher's leadership and persuasive power, both in degree and in kind.

9. Know the teacher's practical philosophy—her attitudes.

The result of such guidance is the elimination of the unfit but also the direction of each suitable "candidate into that type and grade of teaching where her strongest qualities may be most effective and where her weakest may least imperil her success." This is one of the cardinal problems of the hygiene of the occupation.

TEACHER TRAINING INSTITUTIONS AND HEALTH OF TEACHERS

The teacher training institution has many duties toward its students. Legally these are stated in certain statutes like the West Law of Virginia. (See page 28.) The laws provide for the health training rather than

[1] Terman, L. M.: The Teacher's Health, Houghton Mifflin Company, Boston, Mass., 1913.

personal health of prospective teachers. Among the institutions' duties are:

1. The early elimination of persons markedly unfitted for the profession. Where this can be determined accurately and justly by careful observation both mentally and physically, justice demands that such students be advised to seek other careers at the earliest possible moment.

2. Those who may be expected to become satisfactory teachers should be assisted by all possible means to determine what type and branch of teaching is best suited to them. Terman's standards have been mentioned elsewhere in this chapter. Physical factors must be considered along with psychological criteria of fitness.

3. Every effort should be made to guard the health of the student by

(*a*) A careful health examination on entry and thereafter as often as is practical. Forms used at Teachers College and in Connecticut follow on pages 535 to 538.

Note. The Teacher's College form is used with Wood's Personal Health Standard and Scale.

(*b*) Such medical supervision as conditions demand. This will usually mean medical care for ambulatory cases and sometimes providing an infirmary, with nursing and medical service. Such service in a teacher-training institution is a teaching project, since it reveals to the future teachers the desirability of seeking medical advice early in an illness as a means of improving efficiency.

(*c*) Definite instruction in matters of personal hygiene. Not only must the teacher know such facts for classroom purposes but also for the preservation of her own health. Particularly important items are diet, exercise, rest, interest in weight, elimination of bodily wastes, hygiene of the voice, (in women) hygiene of the menstrual period.

(*d*) Supervision over her course of study, in the sense of fitting it to her physical ability to carry it on. Too little attention has been given to this sort of care.

(*e*) The course should include some training in the recognition of variations from the physical normal commonly found in classrooms, such as contagious and infectious diseases, through the presence of which the teacher's health and that of her pupils may be endangered. Such courses are often called "Normal Diagnosis," are given in many teacher-training institutions at present and are inaugurated in more institutions yearly.

(*f*) The teacher must learn to protect her health by creating the most healthful conditions possible in her future classrooms. To do this she must understand such matters as lighting, heating, ventilation, school furniture and its adjustments to individual needs, and other matters concerned with the health administration of schools. Such material is usually presented in a course in School Hygiene.

(*g*) The teacher-training institution should be, and usually is, prepared to certify to the good health of the student on graduation just as much as to her other qualifications for teaching. Such certification at present fulfills the requirements of most school systems without further examination.

Teachers College
HEALTH REGISTRATION

Date .....

Name in full.....

Date of Birth .....Place of Birth.....

University residence.....

Permanent (home) address.....

Name and address of parents or guardian } .....

Major subject or department in College.....

No. of hours or points registered; 1st Sem.....2nd Sem.....

No. of hours of work a week for self-support } .....Kind of work.....

{Any change during the year in hours of regulation or outside work should be reported at the office.}

Occupation before this year.....

Effect upon health of previous work.....

Present health:—Excellent; good; fair; poor.....

Past diseases and effects upon health.....

Eyesight..... Glasses..... Hearing.....

Nutrition.....Nervous system.....

Heart ..... Lungs..... Blood.....

Sleep..... Daily Exercise.....

Date of successful vaccination.....

Date of last attempt at vaccination.....

Remarks .....

.....

.....

.....

.....

.....

.....

.....

FIG. 231. Teachers College Health Registration form. Used in connection with Wood's Personal Health Standard and Scale (see page 525). Card 5″ × 8″.

MEDICAL EXAMINATION RECORD

Physical education and health form 3
6-24-1000

Of..... For admittance to.....State Normal School

The school reserves the right to reject any candidate if the results of this examination, in the opinion of the examining physician or principal, justify such action; or to accept the candidate only under special conditions for completing the course.

Development		Heart—Inspection	
Nutrition		Palpation	
Color		Percussion	
Eyes, lids, vision	R	Auscultation	
	L	Pulse—15 sec. periods	
Ears and hearing	R	Before exercise	
	L	After exercise	
Nose		Blood press. Lying	
Pharynx		Blood press.—Standing	
Tonsils		Temperature	
Thyroid Gland		Hemoglobin	
Lymph Nodes		Urinalysis	
Abdomen		Nervous stability	
Digestive System		Pathological conditions of:	
Lungs—Inspection		Spine	
Breathing type		Joints	
Palpation		Feet	
Percussion		Muscles	
Excursion		Skin	
Auscultation			
Remarks			

MEDICAL EXAMINER'S STATEMENT

I recommend that the candidate be accepted; accepted on condition; rejected.

Conditions to be corrected are:

REASONS FOR REJECTION

In my opinion, the following conditions would interfere with the teacher's health or performonce of duty:

Signature of Medical Examiner .....

Address .....

Name..... Address ..... Date.....

Note: This is a confidential record and the facts contained herein will not be disclosed without the permission of the student.

PERSONAL AND FAMILY HISTORY	DENTAL EXAMINATION
Age Years Month Nationality	Condition of teeth: Clean? Fair? Dirty?
Family history: Epilepsy Tuberculosis	Gums. Inflamed? Abscess? Pyorrhea?
Mental Disease	No. of fistulae and cavities?
	No. of teeth missing? No. with crowns?
General health of applicant: Good? Fair? Poor?	Artificial teeth, plates, etc.
Past history: Diseases, strains, injuries or operations?	Malocclusion?
	PHYSICAL EXAMINATION
	Weight?
Ill effects remaining?	Height standing?
Date of last successful vaccination	Lung capacity?
Eyes: Trouble? Known defect? Glasses?	Posture?
Backaches? Headaches? Constipation?	
Indigestion? Sleeplessness?	
Bowel Movement? Daily? Easy? Difficult?	
Laxative? What? How often? Hygiene?	
Colds: Average no. during winter? Region?	
Tire easily? Worry?	
MENSTRUAL HISTORY	
Began age: Regular? Duration? Interval?	
Flow: Scanty? Moderate? Excessive?	
Pain? Miss classes? Go to bed?	Signature of Physical Examiner

FIG. 232. Connecticut State Normal School medical examination record card 5″ × 8″. Both sides printed. A comprehensive record which may be considered a model for any normal school.

Connecticut State Board of Education

CERTIFICATE OF HEALTH CONDITION

.....State Normal School

To the Principal:

Miss .....

who lives at.....

.....

was examined by me on.....19.....and found to have certain health defects, which in my opinion would not, for the time being, interfere with her work as a student. On the other hand, if they are neglected, they might seriously handicap her health and work as a teacher.

Therefore, I recommend that the above-named applicant be admitted to the school upon condition that the defects noted below are corrected within seven months from this date.

	Corrected on
.....	.....19.....
.....	.....19.....
.....	.....19.....
.....	.....19.....
.....	.....19.....

Signature of Medical Examiner.....

Address .....

I,....., understand that the above-named defects are frequently causes of poor health and will interfere with the performance of my duties as a student and teacher. Therefore, I agree to have said defects corrected before.....19....., or, failing to do so, I will accept my dismissal from the.....State Normal School.

.....
Signature of Applicant

I hereby consent to the terms of the above agreement.

.....
Signature of Parent or Guardian

Note: This is a confidential record and the facts contained herein will not be disclosed without the permission of the student.

FIG. 233. Connecticut Normal Schools. $8\frac{1}{2}'' \times 11''$ sheet. Confidential health record where the student has physical defects.

(*h*) Where a teacher-training institution accepts a physically handicapped student, such a student should be given every opportunity for removing or lessening the impediment. Where cure is not possible the student should be taught how to meet the handicap best, both through selection of a suitable branch of teaching and through medical advice.

(*i*) Obviously physical conditions at the training institution should be as satisfactory as possible. The standards of the future teacher must be based on observations made in training. Hence it is necessary to have good living conditions, well-constructed, well-managed, healthful buildings.

(*j*) The student must learn how to choose suitable recreation as well as to work. This shows the need of a well-planned social life at the training institution.

Summarized, the teacher-training institution must educate its students in health as well as pedagogy. Teachers are not truly trained unless they appreciate the value of health in education. Furthermore the teacher who does not appreciate the value of attaining and retaining good health for herself, can not be expected to "sell" health to her pupils, nor to strive to have her pupils work under healthful conditions. Since school systems are interested now more than ever before in the conservation of the health of teachers as well as pupils, it is now emphatically the duty of the teacher-training institution to fit its graduates to fulfill (with keen appreciation) their "health duties" to themselves, their pupils, and their community. The teacher of today who can not or will not accept her "health duties" is more than an obstructionist; she is a distinct menace to herself, her pupils, her school, her associates, her community. Her training school must bend effort to be sure that such health attitudes of such a teacher have *not* been developed during her training for her profession.

The authors wish to express their gratitude to Dr. Lewis M. Terman and to Dr. G. E. Carrothers for permission to make liberal use of their material.

CHAPTER XVI

MENTAL AND SOCIAL HYGIENE

MENTAL HYGIENE[1]

The Mental Hygiene movement has as its objectives (1) the prevention of mental defects; (2) the correction of defects which already exist. These purposes are accomplished by (1) educational methods emphasizing the relationship of physical and mental welfare, particularly in regard to toxic foci as a source of poor physical and mental health; (2) clinics which reach three general classes of persons (*a*) paroled cases from mental hospitals or mental cases of the non-institutional type, (*b*) emergency cases, (*c*) cases without definite mental defects but with either a highly nervous temperament, behaviorisms, or personality defects; or certain definite symptoms usually classed as tics.

The division of Mental Hygiene, Department of Mental Diseases of Massachusetts has prepared the following list of some conditions in children which would suggest the use of a habit clinic.[2]

"1. *Physical Conditions.*

After the possibility of a physical disease has been eliminated by a thorough examination, we may find habit to be the cause of:—

1. Disturbances of sleep.
   Wakefulness, restlesness, night terrors, sleep-walking.
2. Lack of normal appetite.
   Insufficient, excessive, capricious, or perverted appetite.
3. Disturbance of eliminative functions.
   Incontinence of urine or feces, day or night.
   Difficult urination, constipation.
   Vomiting; persistent, or associated with correction or some disagreeable duty.
4. Convulsive attacks.
   Holding the breath in crying, in a tantrum, hysterical spells, overactivity.
5. Headaches.
   In absence of physical cause may be nervous habit, or used without conscious intention to avoid some disagreeable experience.

[1] In health education, every attempt is made to deal with mental hygiene from the positive or preventive point of view. However, discovering children with mental defects and securing skilled treatment for such cases are very definite and important parts of health service in schools. For this reason, the authors have presented both positive and negative aspects of mental hygiene.

[2] *Habit Clinic Series No.* 9. Published by the Division of Mental Hygiene, Department of Mental Diseases, State House, Boston, Mass.

6. Speech defects.
   Baby talk (prolonged), stuttering, mumbling.
7. Miscellaneous nervous habits.
   Habit motions of mouth or body, nail biting, thumb-sucking.

2. *Mental Conditions or Personality Traits.*
   Usually on exaggeration of something that is normal at the right time and in the right degree.
   1. Withdrawing of attention and interest from real life.
      Daydreaming excessive make-believe.
   2. A "turning in" of the personality.
      Shyness, self-centeredness, lack of self confidence.
   3. Fears.
      Of particular objects or general timidity.
   4. Unusual attachments or dislikes.
   5. Premature or unusual sex manifestations.
      Lack of modesty or excessive modesty.
      Oversensitiveness about sex or unusual interest.
      Masturbation.
   6. Habitual whining or crying.
   7. Obstinacy or negativism.
   8. Temper tantrums.
   9. Over-self-assertion.
      Domineering, demand for attention, pugnacity.
3. *Asocial Conduct.*
   1. Running away.
   2. Lying.
   3. Stealing.
   4. Destructiveness.
   5. Firesetting.
   6. Sex assaults.
   7. Cruelty."

Such work does not duplicate any existing activities for the benefit of the groups affected but rather cooperates and coordinates with such provisions as have been made previously. The social, psychiatric and medical fields are all represented in mental hygiene work.

The group of mental and social disorders which exist in the families or in the children themselves as causative factors of mental and social abnormalities are

1. Mental disorders of family or child including:
   (*a*) Mental defects, such as feeble-mindedness and subnormal mentality,
   (*b*) Mental disease, including the psychoses, hysterias, and neurasthenias;
   (*c*) Mental instability, where there are marked signs of mental disorders, such as suicidal attempts, peculiar lying and stealing, uncontrollable violence or erotic behavior.
2. Delinquency of parents and siblings.
3. Unfavorable home conditions, the result of discord between parents, of ignorance, and poverty.
4. Restricted activities, such as too little recreation or unsatisfactory recreation, resulting in "street life, remaining out late at night; mischievous or delinquent exploits, gambling.

5. Social maladjustment, often found in poorly assimilated immigrant groups.

Summing up all causes of mental abnormality we find (1) social environment, (2) emotional habits, (3) habits of thought, (4) physical causes, such as abnormal secretion of the endocrine glands, injuries at birth, syphilis, alcoholism.

All studies of these children must include investigations like those used in the Public School Mental Clinics of Massachusetts (discussed in detail, elsewhere in this book). Following are the lines of inquiry:

1. Physical examination;
2. Family history;
3. Personal and developmental history;
4. History of school progress;
5. Examination in school work;
6. Practical knowledge and general information;
7. Economic efficiency;
8. Social history and traits;
9. Moral reactions;
10. Psychological examination.

The National Committee for Mental Hygiene holds two fundamental beliefs:

1. In the large majority of cases, the mentally abnormal are not born that way, but through experiences acquire certain emotional habits which become fixed, whether good or bad.

2. Prevention of mental abnormality must begin in childhood if it is to be successful.

A third might be added that:

3. Children who are mentally abnormal, if properly handled, will tend to approach normalcy more closely, and the reverse is also true. This is strikingly true in potential cases, and in the inferior personality types.

In addition to physical examinations on entrance to school and regularly thereafter, plus correction of discovered physical defects, the school (chiefly through the teacher) may attempt to secure mental health for pupils, by approved methods as shown below:

Teaching[1] Mental Hygiene

"The teacher who is wise and practised in this phase of health education helps pupils by sound example and skilful guidance to acquire healthy habits and attitudes in mental, emotional, and social activities and controls.

"Such a teacher will do her best:

1. To understand her pupils individually; to help them overcome limitations;
2. To maintain a calm, orderly atmosphere in the schoolroom which avoids both undue restraint and emotional excitement;
3. To be at all times not only reasonable, but intelligently constructive in dealing with pupils:

[1] Wood, Thomas D.: The Child in School, Care of its Health, National Health Series, Funk & Wagnalls Co. 1924.

4. To encourage activities which inherently emphasize desirable individual and social qualities; *e.g.*, group games, school papers, civic plans, student government, club activities, the development of interest in other people's welfare.

"Such a teacher will help pupils:

1. To acquire emotional control and avoid actions which will arouse undesirable emotions;
2. To avoid being frightened—a childhood fright may be the basis for serious mental disturbance in adult life;
3. To avoid being ridiculed, shamed, or seriously embarrassed—a child's fear of ridicule may paralyze his effort;
4. To experience the satisfaction in activity accompanied by keen interest and zest but free from wasteful and weakening excitement. American children and youth indulge far too often in excessive noise; in thrills and emotional frenzy which augur ill for a sane and efficient next generation of citizens;
5. To establish habits of intellectual honesty;
6. To meet problems squarely and not to dodge the issue;
7. To find a real solution to each problem that faces them;
8. To meet their problems with decision and action instead of continued day-dreaming;
9. To escape a feeling of inferiority. Every child should have a chance to succeed at something; constant failure establishes the habit of failing and tends to discouragement or indifference. Recognition and credit should be given for effort and improvement even more than for natural ability or for superior accomplishment.
10. To avoid self-conceit and boastfulness. The pupil who is accomplished, confident, unselfish and socially helpful, will never be conceited and boastful."

The school should take particular interest in the young child and the child at adolescence, since these appear to be the crucial points, where mental disaster is most likely to occur.

Note. An excellent statement on Mental Hygiene is found on pages 62–65, Health Education, A Report of the Joint Committee on Health Problems in Education, 1924.

SOCIAL HYGIENE

Social hygiene includes sex education but the two terms are not synonymous. Social hygiene "stands for the protection, preservation, extension, improvement, and development of the monogamic family, based on accepted ethical ideals." (Bigelow, Established Points.) It is not possible in this book to consider more than the present status of social hygiene and how the school may assist in the social hygiene program.

Bigelow[1] outlines the following points in social hygiene education as established at present:

1. The scope of American social hygiene has been determined. Unlike in Europe, in America it is limited to social-health problems which have grown out of the sex instinct and these problems may be attacked along these lines—educational, recreational, legal, medical.

2. The general aim of American social hygiene is "the best possible development of all physical, psychical, and social aspects of life as it is in any way determined or influenced by the sex instinct and its resulting traditions and associations."

[1] Bigelow, M. A.: The Established Points in Social Hygiene Education, 1905–1924, Journal of Social Hygiene, Vol. X, No. 1, Jan., 1924.

3. Social-hygiene education and sex education are *not* names for new courses for schools and colleges.

4. Social-hygiene education or sex education means all educational measures which may help to prepare young people to meet the problems of life which center in the sex instinct.

5. There should be no sex courses, except for the purpose of special professional training for educators, doctors, ministers, and social workers.

6. The subject should be presented through the subject matter of other subjects or courses, as biology, social sciences, physical education, household arts.

7. Social-hygiene education permits people to understand important biological and psychological facts regarding sex instinct and its relation to human life by teaching through biology that (*a*) reproduction is necessary for the perpetuation of the species; (*b*) sex organization and instinct are simply nature's mechanisms for bi-parental reproduction.

8. The biological and psychological divisions of social-hygiene education are teaching definitely that human sex control must be on the basis of intelligent choice.

9. Social-hygiene education aims to provide a basis for the necessary intelligent choice by educationally developing many controls of conduct, some of which are respect for public opinion; the feeling of modesty.

10. Important aims for sex education that attempts to make the best possible social adjustment of the sex potentialities of human life are:

(*a*) Developing an open-minded, serious, scientific and respectful attitude toward all problems of human life which relate to sex;

(*b*) Giving that knowledge of personal sex hygiene which makes for the healthful and efficient life of the individual;

(*c*) Developing personal responsibility regarding the social, ethical, psychical and eugenic aspects of sex as affecting the individual life in its relation to other individuals of the present and future generations;

(*d*) Teaching very briefly to young people, during later adolescence, only the essential hygienic, social, and eugenic facts regarding the destructive venereal diseases.

11. The problems of life centering in the sexual instinct fall into two groups: (*a*) Those relating to developing the greatest good that may come from sex. (*b*) Those relating to preventing or curing the common evils of mismanaged sex life.

12. Social-hygiene education has already accomplished much toward solving the problems outlined in 11.

13. The accumulated evidence shows that parents cannot know their young children are safely protected against vulgar first lessons concerning sex.

14. Sex education is a combination of phases of character education and health education and therefore can not be accomplished at any one time.

15. Sex education can not be concentrated in a short period of early adolescence but must begin in early childhood and be graded for each period of life up to maturity.

16. The earliest instruction toward social-hygiene education is nature-study and biology.

17. General literature indirectly teaches important lessons in the field of social-hygiene education, since sex problems have always held prominent place in literature under the guise of love and romance.

18. Abnormality and immorality in sexual lines should undoubtedly not be stressed when teaching young people.

19. The time has come for social hygiene education to stress sex ethics or moral standards on a pragmatic basis.

20. Social-hygiene education is not a universal solution for the problems of sex. It can do no more than give the individual a basis for an intelligent choice between good and evil.

Teaching in the public schools in regard to human sex should not be rendered conspicuous by isolation, but should be incorporated in a natural way, in broader subjects to which sex has a natural relation. Progress here can not be made without the support of public opinion.

To meet the demands of the new and widening program of social hygiene, teachers must have a thorough knowledge of the biological, psychological, and moral backgrounds of sex, in order that they may understand their pupils and give them the wisest supervision and guidance. In order, further, that they may be able intelligently and helpfully to advise and to work with parents who may be ready to receive such help, a comprehensive and rational training should be given in every normal school. The teacher who does not receive such training should try to obtain its equivalent through special courses in winter or summer schools, or through study of carefully selected, authoritative books and pamphlets.

In this education in social hygiene, the home, the family physician, the church and the school all have a definite part. In the school this duty may be performed in individual cases through the child consulting the school physician or the school nurse either of his or her own volition or at the request of his or her parents. In most cases a large share of the school's part in the social hygiene program will fall upon the teacher, and she can help:[1]

1. By acquiring a clear understanding of the fundamentals of social hygiene and the ends to be gained;

2. By inculcating in boys and girls a fine, sound attitude toward family life and parenthood;

3. By acquiring a sane and rational understanding of the sex factor in human life;

4. By cultivating a wholesome attitude toward human relationships and a habit of thinking of natural functions without embarrassment;

5. By cooperating with parents in the work of sex education and by assisting them to acquire wholesome attitudes, methods, and vocabularies;

6. By impressing on parents the essentials of personal hygiene for the child and the consequences of neglect;

[1] The Teacher's Part in Social Hygiene, Report of the Joint Committee on Health Problems in Education. Revised 1926.

7. By a careful avoidance of everything that can arouse sex antagonism between boys and girls;

8. By impressing on boys a sense of responsibility for the ideals and conduct of girls and on girls a sense of responsibility for the ideals and conduct of boys;

9. By encouraging fine wholesome standards of dressing, dancing, reading, conversation, and all forms of social conduct; this to be done by sound example and by appeal to pupils and parents for individual and cooperative efforts;

10. By realizing that the purposes of social hygiene can not be achieved by set lessons but that training for citizenship and parenthood must be an integral part of every course of study.

CHAPTER XVII

HYGIENE OF INSTRUCTION

"The hygiene of instruction considers the effects of the educational process itself upon the health of the individual, and would so control and adjust the various factors which collectively make up school work that the pupil's health will not be injured while he is being prepared for future usefulness. That the process of education is always carried on without danger to pupils' health, even the school men themselves doubt."[1]

Originally education consisted largely of teaching various subjects to children. The desirability of some knowledge of child psychology became evident if teaching was to be successful. The next step in the evolution of education was the recognition of the need of understanding the child organism. At present much attention is given, in teacher training, to the study of the nature and character, physical, intellectual, and moral, of the child and on this is based the modern theory of education.

With this increased knowledge, not only of child psychology, but of child physiology and child biology comes the consideration that both home and school must make certain provisions in the program of hygiene of instruction.

From the home the following may be asked:

That the child present himself at school in the best possible condition to benefit by the instruction given. Two factors influence this situation importantly:

(*a*) Rest and sleep after the previous day's activity. Failure to secure this results in a child unfit to give normal, satisfactory response to stimuli; and there is serious danger of interference with physical, mental, or even moral growth and development if the condition is allowed to continue.

(*b*) The child must eat an unhurried, nutritious breakfast and get to school on time without rushing.

The requirements from the school are: (1) That the school program be arranged for the class and adapted so far as necessary to the individual pupil with reference to genuine fatigue, which means quite normally a lessening of working power as the day proceeds. Fatigue from a reasonable day's activity disappears after a sufficient night's rest.

Abnormal fatigue in the schoolroom may be decreased largely: (1) by more frequent use of rest periods; (2) by arranging stronger contrasts in the daily program, as by a wise adjustment of difficult subjects to the best working hour and by arranging the school program so that "heavy" subjects are followed by subjects making an entirely different set of demands upon

[1] Ninth Yearbook, *loc. cit.*

the pupil. This last feature is accomplished in part by careful placement of the manual training, physical education, and rest periods. The severer studies belong in the morning hours. The hourly five minute "flushing period" used in some school systems or the short respite frequently allowed between recitation periods permits slight relaxation. The value of afternoon sessions is doubtful. At most, light work only should be permitted, (*i.e.*, penmanship and music).

2. The eyes of school children must be protected from excessive strain. Abnormalities of the eyes which are partially caused or aggravated by school work increase from the lower to the higher grades.

Proper care of the eyes implies:

(*a*) Very little fine work for young children;

(*b*) Books with large, distinct letters and figures printed on unglazed paper;

(*c*) Use of large characters on clean blackboards placed in good light;

(*d*) Use by pupils of coarse writing pens or soft pencils;

(*e*) Proper natural or artificial lighting of the school-room;

(*f*) Proper adjustment of lighting to meet the needs of a particular school day. A dark day requires different adjustments than a bright day.

3. Recess and frequent short intervals of rest and relaxation between periods must be arranged in order to avoid overwork, since the latter would inevitably check physical as well as mental development. In the lower grades children should be granted a recess of from eight to fifteen minutes after every sixty minutes, the time being spent in attention to bodily needs, to rest, and to the taking of nourishment.

Ample provision for free play must be made particularly at recesses.

The recess period should never be "stolen" for other purposes, no matter how apparently desirable these may seem.

Keeping the child after school is rarely permissible, since the element of abnormal fatigue and disarrangement of the day's program of the child are sure to offset any minor disciplinary advantages of the plan.

Wherever possible, children should be permitted to move about the room with a reasonable amount of freedom, provided their actions do not disturb the rest of the class. This is especially true in the lower grades.

A natural or more rational program of gymnastics has removed the previous program difficulty caused by the fact that "formal gymnastics rank with mathematics among the most rapidly fatiguing of all forms of instruction."

4. The school schedule should not require formal or artificial tests and examinations, which seriously disturb the state of nervous health of the pupil, either at the time of the test, or by a period of abnormal nervous tension during preparation for such a test. The child is often in a state of collapse after such tests. Cannon's studies have shown the remarkable incidence of glycosuria among medical students following examinations.

(*a*) Promotions must be arranged in a manner consistent with good health. The traditional promotion of entire classes at the end of the year or half year is not as conductive to health as a more flexible plan. At

adolescence it is often desirable to permit certain pupils to take only a partial program; otherwise serious, permanent injury to health may result. This is particularly true of certain high school girls.

Definite experiments are being made with methods which permit children to travel largely at their own pace. Such methods are still in the laboratory stage but seem to be founded on sound educational and hygienic principles. The present difficulty is to secure proper technic for carrying out the fundamental ideas.

5. The school atmosphere must be one of joy, of inspiration, or leadership rather than stern discipline. This factor is importantly influenced by the health of the teacher. Fitz[1] ably expresses this idea: "The wholesome development of the child's nervous system depends upon maintaining his interest in school work, fostering and directing his spirit of inquiry and satisfying his love and need of activity. Substitution and suggestion must take the place of prohibition and repression. The true discipline is the self-control of interest."

6. The study of each child as an individual psychological and physical problem and not as merely a member of a group, is the final requirement for the favorable school program. Many of the mental hygiene problems may be prevented thereby.

[1] Ninth Year Book of the National Society for the Study of Education, p. 60. Public School Publishing Co., Bloomington, Ill., 1910.

CHAPTER XVIII

HEALTH EDUCATION[1]

Health Education aims: 1. To instruct children and youth so that they may conserve and improve their own health.

2. To establish in them habits and principles of living which throughout their school life and in later years, will assure that abundant vigor and vitality which provide the basis for the greatest possible happiness and service in personal, family, and community life.

3. To influence parents and other adults, through the health education program for children, to better habits and attitudes, so that the school may become an effective agency for the promotion of the social aspects of health education in the family and community as well as in the school itself.

4. To improve the individual and community life of the future; to insure a better second generation, and a still better third generation; a healthier and fitter nation and race.

Any *health education program* should be based upon actual needs as shown by incontrovertible facts rather than upon general theories. For this reason it is conceivable that various local health education programs will always differ in some details in order to meet local needs, although certain fundamentals will be found in all health education programs.

Of factors which promote good health, the following are modifiable by education: 1. Hygienic personal habits of living in regard to eating, dressing, sleeping, cleanliness, exercise; mental, emotional, and social behavior; safety and first aid conduct, etc.

2. Knowledge of health principles and facts regarding:
   (*a*) Hygiene for different age groups;
   (*b*) Sanitation;
   (*c*) Physiology;
   (*d*) How to find, evaluate and use health service and medical advice;
   (*e*) Care of the sick.
3. Environmental conditions.
   (*a*) Adequate and safe food, water, and milk supplies;
   (*b*) Sanitary sewage disposal;
   (*c*) Good housing conditions;
   (*d*) Favorable industrial and economic conditions which help to prevent:

[1] This material is taken largely from "Health Education" a report of the Joint Committee on Health Problems in Education, 1924, prepared under the direction of the senior author of this volume. This report represents the most accurate and concise statements available.

1. Poverty;
2. Unhygienic working environment.

(*e*) Well supported, adequate, public health practices.

4. Stimulating ideals of health, such as:
   (*a*) Desire for vigorous and abundant health; discontent with low vitality and mere absence of disease;
   (*b*) Desire to attain and maintain favorable standards in weight, posture and the daily habits necessary to secure the highest efficiency and satisfaction;
   (*c*) A practical conviction that prevention is better than cure, with realization that it is distinctly uneconomical and scarcely moral to "keep going as long as possible" before seeking remedial measures.
   (*d*) Development of a "health conscience" which realizes the culpability of exposing other persons unnecessarily to infectious diseases; willingness to suffer inconvenience for the sake of the community—for example, quarantine.
   (*e*) Faith in scientific professional service and hygienic living; not in fads and quackeries.
5. Eugenic marriages.

The principal *duties of the supervisor* should be to develop Health Education skill and enthusiasm of teachers in service, through:

1. Providing teachers with the best known definite standards and tests of child health, teaching the use of same, and methods of evaluating results of work.

2. Assisting teachers to analyze the health needs of their classes and then to plan work to meet these needs, so as to produce positive results in actions, both through correlation of health instruction with the total of instruction, and through effective use of special methods, as weighing, inspection, etc.

3. Arranging extension courses in subject matter, to be given by those specialists in the school system or the community, best fitted to help the teachers.

4. Anticipating teachers' needs for materials of instruction, books, charts, supplies, etc.; supplying same and stimulating inventiveness in use of experiments, trips, etc.

5. Arranging for inter-school visits to teachers who are carrying on successful health teaching and for conferences with these teachers.

6. Working out for her department definitely stated objectives, giving demonstration and lessons when needed.

The *supervisor of health education* should possess as many as possible of the following:

1. Broad cultural and general education with graduation at least from a teacher-training institution and, when possible, with the addition of graduate study in some university providing satisfactory professional training with advanced study in the field of Health Education.

2. Experience in teaching health as a valuable background and preparation for supervision. If the supervisor in this field has been fortunate enough

to teach other subjects than hygiene under competent criticism, this auxiliary experience may prove of very great advantage.

3. Thorough grounding in the fundamentals of:
   (*a*) General educational principles and methods;
   (*b*) Psychological and pedagogical principles and methods in special adaptation to the field of Health Education.
   (*c*) Natural, biological and social sciences, with as extensive knowledge as possible of sanitation, public health, hygiene, nutrition, and allied subjects.
   (*d*) Skill in observing, criticizing and guiding acceptably teachers under supervision; tact in combining successfully a minimum of adverse criticism with a maximum of constructive stimulation and help.

As *normal school curricula* are usually organized, health education may be a part of numerous courses:

1. Chemistry, especially organic, physiological or applied chemistry courses, particularly in the study of nutrition;
2. Physics, especially applied courses; *e.g.* study of ventilation;
3. Biology, including genetics and eugenics, nutrition;
4. Bacteriology;
5. Physiology;
6. Psychology;
7. Sociology;
8. Home economics;
9. Child study courses—including child psychology, physiology, and hygiene;
10. Hygiene courses, personal and community;
11. Physical education program.

Both supervisors and teachers of Health Education should be, in personal, social, and professional conduct wholeheartedly devoted to the physical, mental, and character health of children and youth. They should present a stimulating and healthful example for their students and fellow teachers in thinking, in attitudes and conduct affecting health, personal and social.

The *teacher of Health Education* may with great advantage possess:

1. As large an amount as possible of the desirable elements and training previously stated as important for the supervisor.

2. Ability to accept criticism with grace and skill in recognizing her own limitations and in manifesting not only willingness but desire to seek advice wherever and whenever this is available.

3. Appreciation of the fact that the more limited is the general and special training of the teacher for the work of Health Education, the more necessary and advantageous are supervision and guidance wherever and whenever these may be found.

4. Practical desire and effort to improve, as rapidly as circumstances may permit, her general and special preparation for Health Education.

From the above it is evident: (1) That the actual teaching of health will be done largely by the class-room teacher. (2) That the special teachers

and supervisors will serve largely as guides and sources of information and inspiration for the class-room teachers.

Present conditions in the field of Health Education are uncertain. To date there has been a great deal of work on special aspects of the situation; the Health Education report of the Joint Committee on Health Problems in Education represents a successful attempt to correlate and combine the different phases of health education into a single source of fundamental material. Such a report provides the working tools. The technic of application of these principles must be the next step.

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE DEPARTMENT OF EDUCATION
MEDICAL INSPECTION BUREAU

Date..... HEALTH EDUCATION

Telephone no..... HEALTH TEACHER QUESTIONNAIRE

Name..... Birthplace..... Date of birth.....

Number years in high school..... Name of high school..... Where located.....

Number years in college..... Name of college..... Where located.....

Number of years in other schools..... Nature of..... Where located.....

Name and location of hospital where training was taken.....

Years in training..... Year of graduation..... Date of initial registration in New York State.....

Date of last registration..... License no..... Have you taken any postgraduate work?..... What year?.....

Nature of postgraduate work..... Length of course..... Where?.....

How many years experience have you had in (1) Private nursing?..... (2) Specialized nursing?.....

(3) Nature of specialization.....

Have you had training in physical education?..... Where?..... How long?.....

Where are you now employed?..... By whom?.....

Salary paid.....

[*Signed*].....

[*Address*].....

FIG. 234. New York State Health Teacher Questionnaire. 5″ × 8″.

Various technics have been used with different grades of success. Lack of laboratory facilities for evaluating teaching plans has seriously handicapped progress. Were such facilities available, teaching schemes could receive the acid test before being given wide distribution and it is equally true that workers in the field would place greater confidence in the material emanating from such a laboratory.

Until such means for applying the "test of use" to various plans is available, such research must be done under less controllable and less favorable conditions in the field, and evaluation made on as sound a basis as possible.

At present there are no sound plans for *evaluating results of Health Education.* Such measurement of results must answer the following questions:

(*A*) **General results.**

1. What health habits have been formed by each pupil? Are being formed? Still need to be formed?
2. What attitudes have been established? Still need to be established?
3. Of what knowledge do the pupils have useful command?

4. Has the health of the pupils shown improvement, *e.g.*, as shown by decrease in absences due to illness, or decrease in the presence of illness where absence is not necessary and does not occur?

5. Has there been any relationship between health improvement (or lack of it) and the results indicated in questions 1, 2, and 3?

(*B*) **Comparison of methods.** (1) Which methods and materials are most effective in producing results in habit formation? Attitude formation? In informational learning?

While there are no standardized tests for measuring health habit formation, below is a variety of methods now used:

1. Keeping daily records, score cards, etc., upon which health habit performance is regularly checked, throughout the year.

2. Keeping daily records for a short period of time, say a week, at the beginning and end of each term, with comparison of results.

3. Comparison of weight records, illness records, attendance records, and other objective evidences of the child's state of health, with his habit records, to serve as a partial check on his accuracy in reporting. Such records form only a partial check on health habit performance. Unless the child's health record is otherwise normal, these objective evidences must depend in part on the child's physical welfare as shown by the presence or absence of physical defects.

4. Observations and questions by the teacher in school, *e.g.*, in the lunch room, on the playground, and during home visits.

5. Observations by other interested persons especially at times when the pupil is off his guard, *e.g.*, whether he coughs in his examiner's face during a health examination, or whether he covers his mouth with his hand (at least) and turns his head away from the examiner when requested to cough.

6. Child's report at end of semester, showing how he has improved. Such reports are sometimes written as letters by the pupils.

Measurement of attitudes is determined only by the behavior of the child.

Measurement of knowledge in health education may be accomplished by tests constructed in accordance with the best educational principles. There may be a relationship between the pupil's habit record and his "knowledge" record.

Accurate measurement of health education results is difficult since many other factors enter into the improvement in health or lack of improvement in health. In any case, the results of health education must be measured in terms of educational outcomes, as well as immediate health outcomes.

It may be stated safely that Health Education is in the crysalis stage at present. Further than this, the future cannot be prophesied.

That the work is fairly successful in small cities is shown by Palmer's[1] description of the early life of the average child:

"Thirty-five thousand school children have frankly confided to us their daily habits. All of these children are in the fifth grade. This gives us an unusual opportunity to make a fair comparison of child habits in different sections.

[1] Palmer, G. H.: A Preliminary Report of a Survey of Child Health Activities in 86 cities, delivered in Kansas City, Mo., Oct. 14–16, 1924. See note on p. 19.

"It is not mere fiction to speak of these thirty-five thousand children as one composite American Child approximately eleven years old, and as the replies to these questions are spread over a period of five months, we may be pardoned for relating these habits to what is occurring at present. Please understand that this average child I am about to describe is a hypothetical case. He does not exist as such. When I say the average child drinks a glass of milk you will understand that actually some children drink no milk and others drink five glasses a day. The average, however, does give one a picture that can be visualized.

"This eleven year old school child, a resident of our smaller cities, went to bed last night at four minutes of nine.

He arose this morning at five minutes after seven.

He thus had 10 hours and 9 minutes of presumably refreshing slumber.

He had a substantial breakfast in which bread and butter, cereal, milk and an egg were the main items.

During the entire day he drank 1.4 glasses of milk.

In the last week he has had one bath.

He brushed his teeth on five out of seven days.

He played out of doors after school on six of every seven school days.

He has been to the dentist once in the last two years.

In other words he is a fairly respectable child and would undoubtedly hold his own in any international contest in this field.

He does not drink enough milk, however, and he could have his teeth looked over profitably at more frequent intervals.

So much for the average child.

Now let us separate this child into his 35,000 constituent parts.

Seventy percent were in bed before 9:15. Seven percent were still up and about at 10:15.

As to hours of sleep, seventy-one percent had 10 or more.

Only thirty-eight percent of these children drank three or more glasses of milk yesterday and one out of every five children drank no milk at all.

The average child who does not drink any coffee consumes almost a pint of milk daily.

The child that drinks two or more cups of coffee consumes less than a quarter pint of milk."

HEALTH EDUCATION AND GOOD CITIZENSHIP[1]

Explanation of Symbols

A plus sign (+) indicates those habits and attitudes which are unusually well developed; a minus sign (−), those which need careful training; and the letter I, those in which improvement has been marked.

The numbers at the left of the items represent "key numbers." This key number, instead of the item itself, is used for the office record.

The numbers in parentheses at the end of the items represent their relative importance as evaluated by a large number of judges; 10 representing the most important items, 9 representing those of lesser importance, etc.

Directions for Marking the Quarterly Reports[2]

1. In reporting on habits and attitudes write at least one item under each of the headings 1, 2, and 3.

2. Preface the item reported by the main heading under which it appears; for example, 3 "Self-Control: Is agreeable when he can not have his own way." If a double heading occurs, such as "Courage and Perseverance," use the one which seems most applicable.

[1] A method of marking health and posture as a part of the habits and attitudes desirable for good citizenship in the elementary school, as used in Horace Mann School. The school physician, the supervisor of hygiene, and others were asked to cooperate in preparing this material. Other habits and attitudes covered are Orderliness, Thrift, Promptness and Obedience, Clear and Purposeful Thinking, Helpful Initiative and Self-reliance, Self-control, Fair Play and Sportsmanship, Honesty and Trustworthiness, Courage and Perseverance, Sense of Civic Responsibility, Refinement, Courtesy and Consideration, Cooperativeness, Generosity and Broadmindedness, Loyalty, Appreciations and Their Expression.

[2] "For a description of the plan for school reports incorporating habits and attitudes, and the method of standardization of the chart, see Teachers College Bulletin, Twelfth Series, Number 9, by Clara F. Chassell and Siegried H. Upton." Quoted from Key Chart.

3. On the report card write lightly in pencil in front of each heading the key number which precedes the item on this key chart. (Note the 3 before Self-control above.)

4. In order to provide for flexibility in the use of the chart and to make possible its improvement through suggestions and the addition of new items, space has been left under each heading where new items may be entered by the teachers. At the end of the chart, space is also provided for entering new headings. For such new items as each grade may desire to add, the following key numbers are suggested: Grade I, 30–39; Grade II, 40–49; Grade III, 50–59; Grade IV, 60–69; Grade V, 70–79; Grade VI, 80–89. Items added from other sources are to be numbered 90–99. These key numbers are to be used consecutively under each heading.

THE GOOD CITIZEN

HEALTH AND POSTURE[1]

1 Plans his daily program so that there may be a healthful balance between work and outdoor activities.(7)
2 Is cleanly in habits, person, and dress. (7)
3 Carries out directions of school and family physician. (6)
4 Reports symptoms of illness promptly. (5)
5 Spends in sleep, in a well-ventilated room, the number of hours prescribed for one of his age. (5)
6 Is careful of his eyes, not reading in a dim light or when lying down; taking care that the sun does not shine on the page, and that the light comes over the left shoulder when he is working or reading; and keeping the book or the paper at a proper distance (about fourteen inches) from the eyes. (5)
7 Orders well-balanced luncheons suited to his needs. (5)
8 Avoids getting wet, getting chilled, or cooling off too suddenly after play. (5)
9 Washes hands before eating. (4)
10 Takes a sufficient amount of time to eat properly. (4)
11 Does not indulge in sweets to a harmful extent. (4)
12 Keeps hands and materials away from mouth, and fingers away from nose and ears. (4)
13 Holds head easily erect and chest high, even when working at a desk. (4)
14 Walks with a light step resulting from a feeling of 'uplift' throughout the body. (3)
15 Holds book in correct position. (2)
50[1] Is able to relax.

THE GOOD CITIZEN[2]

HEALTH AND POSTURE

1 Is cleanly in habits, person, and dress. (7)
2 Carries out directions of school physician. (6)
3 Reports symptoms of illness promptly. (5)
4 Sleeps, in a well-ventilated room, the number of hours prescribed for one of his age. (5)
5 Is careful of his eyes, keeping the book or paper at a proper distance from the eyes. (5)
6 Orders well-balanced luncheons suited to his needs. (5)
7 Avoids getting wet, chilled, or cooling off too suddenly after play. (5)
8 Keeps hands and materials away from mouth, and fingers away from nose and ears. (4)
9 Sits and stands correctly. (4)
. . . . . .
. . . . . .
. . . . . .

FIG. 235. Horace Mann Elementary School. Habits and attitudes desirable for good citizenship key. Cf. footnote 1, p. 555.

[1] 1919. See "Explanation of Symbols," p. 555. [2] 1922 revision.

CHAPTER XIX

HEALTH PUBLICITY

Publicity may be defined as the use of any or all possible and desirable means of influencing the opinions of the public as a group of individuals. Health publicity forms an important means of (1) making contacts with the persons in the community who can not be reached by direct means such as through some member of the school personnel; (2) strengthening relationships for health already created by other means, as by contacts.

The school should interest the public in its health work: (1) to improve cooperation by parents and community both as individuals and as a whole; (2) to influence public opinion favorably toward certain plans, such as a Schick campaign; (3) to give an accounting to the public of how its money is being spent and what results are forthcoming.

The subject is a highly technical one in which a few fundamental principles exist but one in which fashions and practises change frequently. Publicity of any sort is a specialty and requires special training. That health publicity has often been unsuccessful is due partly (1) to lack of funds; (2) to enthusiastic but inexperienced persons attempting it, because no more skilled workers were available. Commercial advertising agencies are using health material skillfully for selling various products, such as chewing gum, insurance, dentrifices.

From a national or state point of view, health publicity is a matter for the expert only. The construction of literature for national use, the devising and taking of health films, preparations of posters, the planning of national health campaigns require a triple knowledge: (1) of health; (2) of the special means by which the public is to be reached; (3) of technical matters such as make-up and use of type, or scenario writing. One may understand health and be a poor movie director and one may be an excellent movie director and spoil perfectly good health material. Such organizations as the Russell Sage Foundation in New York City have published much material in the American Journal of Public Health and elsewhere and are available for consultation, especially if more than a local campaign is being planned. The committee on Publicity Methods in Social Work, New York City, sponsored by the Russell Sage Foundation through Mr. and Mrs. E. G. Rontzahn, is an outstanding clearing house for material on health publicity.

This chapter will cover local publicity, chiefly, and will attempt to mention a few methods by which the school health work may be brought to the attention of the public, such as:

1. Talks. If there is a full-time Supervisor of Health he must be a satisfactory speaker. All health executives should be able to address

meetings, both locally, and outside the community when requested. Many excellent health workers are poor speakers and place their programs under a handicap thereby. Many good books on public speaking are available and should be studied.

Talks should be brief. Twenty minutes is usually ample. Carefully prepared material of real interest and value must be placed and presented on a level which may be understood by the audience. Many speakers prefer to give too technical discussions or fail to prepare themselves adequately. Humor and human interest add "punch" to any talk. Above all, it must be possible to hear the speaker. If any talk is preceded by lively music, this will usually place the listeners in a cheerful, receptive mood. Where the subject permits, positive presentations are preferable to negative ones; that is, health rather than disease has the more popular appeal.

Frequently topics are chosen by the organization which requests the official to speak. Should the suggested topic prove to be one which can not be well presented, an attempt should be made to change to a more effective one.

After such talks, questions should be encouraged and answered in a convincing and friendly manner. It is not customary to "heckle" a guest speaker, and questions rise from interest and not a desire to embarass the representative of the school.

2. Newspapers. Reynolds[1] has made a thorough study of Newspaper Publicity for the Public Schools and has valuable suggestions for the reader. His conclusions apply to the whole public school system and not health work only. Several types of material are used for health publicity in newspapers:

(*a*) Articles having news value. These may be reports of health bazaars, findings in health examinations, of conditions of buildings, of the results of Schick and Dick Tests, human interest stories, and similar material. They are run as news articles. News stories should be given to all papers impartially, except that any paper which discovers a story should be protected in securing the "beat." Such stories may include photographs. No good end is served by favoring one paper or one group of papers. The schools and their news belong to the community. Should any paper attempt to twist news in a hostile, dangerous manner, a special policy may be adopted to fit the case. Frequently the article must be in shape for the reporter when he arrives for the story. Where any technical points are involved, a written statement will avoid error on the part of any reporter whose familiarity with technical details is known to be doubtful. A written statement leaves no doubt as to what has been given to the papers. Copies of releases should be retained.

(*b*) Feature articles, signed by some one connected with the school health department. Usually these are run in Sunday editions and are on subjects about which the home should know. To give these articles an authoritative appearance (and not as a personal boost), it is desirable to have the author sign his contribution. Such contributions are about one double-spaced

[1] Reynolds, R. G., Newspaper Publicity for the Public Schools. Copies may be obtained from the author at Teachers College, New York City.

typewriter page in length. In such statements there should be some "catch sentence" which will be seen by most readers of the paper, even if all do not choose to read the article. It seems good policy to have this "catch sentence or phrase" printed in much heavier type than the rest of the article. Feature articles may be regular or occasional contributions. No "feature" should be given to more than one paper. If several papers will take the service. a separate discourse should be written for each.

(*c*) Photographs in Rotogravure sections and elsewhere.

3. Special publications. (*a*) In practice this would often mean articles in the school or health publications, if any exist, or contributions to the school page in the newspaper. Frequently Board of Health publications will contain a few articles on school health work, particularly on the health examinations or contagious disease aspect. Such articles appear in the publications of the Board of Health of New York City, Detroit, Philadelphia, and elsewhere.

(*b*) Reports of the school health department appear as part of the report of the organization administering the school health work and vary in length and interest. In preparing such statements it should be remembered that the public is best pleased with a readable well-illustrated general statement of facts, while the expert desires statistics. A good report will supply both needs cleverly.

(*c*) Reprints of articles by members of the staff, published in periodicals of a professional nature.

4. Special messages to parents. These may be (*a*) special locally prepared material; (*b*) health literature prepared by official and voluntary state or national organizations or by life insurance companies whose business is identified with the promotion of good health and health habits.

Such special material is distributed at times of special need, as in epidemics of contagious disease; at assemblies; during periods of follow-up work after health examinations; nutrition campaigns; situations where some special interest needs to be aroused as in diseased tonsils or adenoids or in the Schick or Dick Tests.

5. Special meetings for promotion of health. These may be: (*a*) Lectures or moving pictures presented at the school or elsewhere. The attendance at such meetings is not large unless specially advertised.

(*b*) Health plays, bazaars, carnivals. These arouse great interest on the part of parents because their children take part. The result will be a large attendance. By the judicious interpolation of health facts among bazaar amusements, much good may be done. The distribution of attractive literature is desirable. Booths are used for demonstrating weighing, health examination records, etc. At such meetings, excellent contacts may be made with parents and such occasions should always have the presence of several health workers, especially those in the district.

6. Health moving pictures as part of regular or school picture shows. These may appear as a regular feature or as part of a special campaign. They may be films brought in from outside or they may be part of the city's news reel. In New Bedford, Mass., during a Schick campaign, moving

pictures were taken of the work and presented as part of the local news film. Great care must be taken in choosing films. Many lack good showmanship and merely bore the audience, who will then complain that such reels are propaganda and not amusement. Unless a health picture has both definite amusement and definite teaching value, it is not wise to present it to a general audience. The National Health Council, 370 Seventh Avenue, New York City, maintains, in mimeographed form, a list of approved Health films, together with information about where they may be obtained and at what cost.

7. Window exhibits. Bookstores are especially willing to lend their windows for this work. In one city a collection of large, well-taken photos of accidents, as part of a Safety-first campaign aroused the greatest interest, as did a model circus known as the Good Health Shows, the Greatest Show on Earth. Such exhibits must have material for general interest and must be carefully prepared and well presented. Good showmanship is essential. One week is long enough for most exhibits. Displays of the work of conservation of vision classes or of classes for the mentally subnormal often arouse (1) an appreciation of the accomplishments in these groups, and (2) better coöperation by parents of children in these special classes and by parents who have refused previously to allow their children to enroll in them.

8. Poster exhibits. These are best liked if they are made locally, preferably by school pupils. Where this is impossible, suitable posters on different aspects of health may be obtained from such organizations as the Joint Committee on Health Problems in Education of the National Education Association, and the American Medical Association, the American Child Health Association, and other organizations dealing with special fields such as the Anti-tuberculosis Societies (National and State), Mental Hygiene Societies (National and State), the National Committee for the Prevention of Blindness, and others.

9. Radio. The educational possibilities of the radio are under present investigation. It is believed that radio programs will include much more educational material than at present. The successful coöperation between the Home Study Department at Columbia University and the Station WEAF of the American Telephone and Telegraph Company in New York City, has made possible a new type of education in the home. Other groups are attempting somewhat less ambitious programs.

While it is impossible, at present, to state exactly what are the essentials for successful radio health programs, consultation with program experts and personal experiences lead the authors to believe that the following standards should be met:

1. The speaker must be chosen carefully. His qualifications may be summed up as:

A. Professionally and ethically sound.

B. Experienced in public speaking, and with clear and faultless diction.

C. Ability to supply, through the medium of his voice, that atmosphere which is usually obtained by other means, where the public actually sees the

speaker. He must be able to win the confidence of his listeners, arouse their interest in his subject, and retain in them that friendly feeling which is characteristic of the "radio fan." All this is necessary if the speaker is to act as a leader toward better ideals of health.

D. The material must be non-technical; on a popular level (but not as in too many cases a low popular level); must have entertainment value, as well as soundness and educational worth. "Human interest" must be maintained.

E. If material is read, such presentation lacks spontaneity and this is frequently detected by the listener.

F. It is unwise to use material which is confusing.

G. A series of talks at stated intervals, preferably by the same speaker, is a successful way in which to conduct an education program. However, if a series is given, the speaker must be able to "sell" himself and his material to his audience.

H. Talks must be well-advertised and a radio prestige built for talks and speaker. This takes time, especially since series of talks are recommended to friends by radio fans. While a speaker, already well-known in other fields, may interest the radio group for a single talk, it seems to require a certain "radio quality" of speaker to retain interest. This fact has held true in connection with radio artists in general.

I. Radio fans are accustomed to write the speaker for free literature. It is often possible to supply this demand through coöperation with voluntary or public health agencies, who are glad to assist in the work.

Some attempts have been made in certain school systems, as in New York City, to present programs more or less regularly over the radio. The school health group should expect to participate in such activities.

10. Special campaigns for health or for the promotion of special parts of the health work, are sometimes inaugurated. They must be prepared carefully. They may combine any or all features outlined above. A brief intensive campaign seems to be the most successful.

In general it is best to have one person in charge of the health publicity. Others may contribute as much as they desire but their material must be in accord with the general publicity policy. In this way (1) newspapers know where to secure the news; (2) publicity may be mapped out for weeks ahead and everyone given an opportunity to present something worth while; (3) material will be uniform in presentation of general school health policies; (4) the school, and not individuals, will be popularized; (5) the presentation of unfortunate material at inopportune times will be avoided; (6) the health publicity can be correlated, if desirable, with the general school publicity.

The reader will find many publicity devices possible. Only the most feasible types have been outlined.

CHAPTER XX

HEALTH SUPERVISION AND CARE OF THE PRE-SCHOOL CHILD

The pre-school period begins at birth at the latest and ends somewhere about the sixth year when the child enters school. Roughly, it may be divided into the infant and the runabout periods, the borderline being somewhere between the ages of one and two. These divisions can not be defined sharply but serve as a basis for the attempted solution of the problems of this period.

To the educator and the health worker, the pre-school age, aside from its possibilities from the purely educational point of view, offers excellent opportunities for lightening the duty later thrust upon school health systems, the term "duty" including promotion of both physical and mental health.

OBJECTIVES OF PRE-SCHOOL HEALTH WORK

The objects to be sought at this age are (1) to assure the child normal growth and development, if these are attainable; (2) to discover defects of body or mind which militate against normality, and, where possible, to correct such defects as early as feasible; (3) to instruct the child early in personal hygiene, interpreting this term broadly. The performance of these functions during the pre-school period, (1) permits most children to enter school unhandicapped physically or mentally, and thus enables them to derive the greatest advantage from their educational opportunities; (2) relieves the already overburdened school system from assuming duties which parents should have been educated to perform before the child is admitted to school, and thereby enables the school to supplement these duties rather than to have to perform them; (3) prevents permanent damage from defects which otherwise might bring about serious injury to health, and (4) permits remedy at an age when, in many cases, the discomfort or shock of the experience can be the least.

Care of a child's health must be begun in the prenatal period, and the present day prenatal and obstetric clinics, both through education of the mother and through good medical service, have strikingly reduced infant mortality. The Shepperd-Towner Bill represents an attempt at partial federal support of such work and even in states where the provisions of this Bill have not been accepted, at least it had the effect of securing greater interest in, and therefore support of this prenatal work.

As soon as the child passes from the hands of the obstetrician, another group of social and health agencies are ready to take up the work for the child. These prenatal and postnatal influences are often united or coordinated to some extent. The greater the coördination, the more success may be expected.

TYPES OF HOMES REACHED

Two types of homes are reached in health promotion: (1) the groups who employ private physicians; (2) those who must depend on other agencies for such service (usually because of limited finances). The same rules apply to both groups. For the second group the infant welfare station is a typical method of providing medical service and the public nursery affords one method of assuring the essential conditions to enable the child to develop as he should.

PUBLIC INFLUENCES UPON THE HEALTH OF THE YOUNG CHILD

The types of **infant welfare stations** are: (1) *Health centers*, which confine their activities to a limited neighborhood and deal with the entire family. Such clinics are often a part of the highly diversified outpatient department of a large hospital. Their scope usually depends on what other medical facilities are conveniently available for their group of patients. Educational work is emphasized.

2. *Milk stations*, where pure high-grade milk for babies may be secured for a small sum, or gratis if necessary.

3. *Stations which do not dispense milk* but where provision is made for examinations, and for nurses who go into the homes to instruct mothers in the care of the baby.

4. *Feeding centers*, usually established in public hospitals. These provide medical advice and sometimes take an interest in securing wholesome milk for these babies.

Other favorable influences upon the health of pre-school children are:

1. *Milk inspection*, a preventive measure which is customarily a function of the board of health, has a distinct influence on the incidence of the milk-borne diseases. This inspection assures suitable milk for the infant's consumption.

2. The "*little mother*" of the tenement district, always an object of pathetic interest because she must care for younger children while her mother works. Since her function is recognized as necessary, she is being taught proper methods of infant hygiene. Various organizations have developed suitable short courses for this purpose. Often lessons are given outside the school curriculum because of lack of time in school hours. The best examples seem to be the splendidly developed Mothercraft plan, usually under the auspices of the Federation of Women's Clubs, and the Red Cross course. Frequently these courses are given to girls of fourteen and fifteen or those who have attained a certain grammar school grade. The most suitable age for the "little mother" to receive this instruction, depends on the state law in regard to the employment of minors, since this group seek gainful employment as early as is legally possible. The best time to offer this course is two years before the lowest age at which the child may secure a full-time work card, since the advantage is not at once lost through the student becoming a wage-earner and therefore no longer a "little mother." Thus the course would be given to girls of twelve to fourteen in states where fourteen was the legal working age. Twelve would be the best time here,

as it would permit about two years' practical use of the course. Subsequently the pupil may train a younger child in the approved methods at the home. Junior High Schools and Continuation Schools offer more ambitious courses for the older children. Such instruction has proved so popular that even in the Women's Colleges, excellent courses are offered and are recognized as most valuable.

This pre-parental type of education has proved advantageous to all social groups, sometimes because the individual so trained is at the moment caring for young children because of the inability of the mother to give more time for her young offspring; and sometimes because the child or student so trained is thus prepared to be a more intelligent mother to her own offspring. In either case the influence of such pre-parental education is felt favorably in the home, and indirectly in the community through improvement in the health and the mortality rate of young children.

3. *Baby weeks campaigns* which attempt to arouse special interest in a community during a brief period.

4. *Healthy baby contests.*

5. *Publicity* through newspapers, magazines, radio, and literature distributed by national, state, or local (public or private) organizations.

REPRESENTATIVE PLANS FOR PRE-SCHOOL HEALTH WORK

A national plan.[1] "The problem of the entrance of children 100 percent perfect in health into school at the beginning of the school year has engaged the attention of parents in many States and has resulted in the correction of defects with which the children might have been handicapped in their school work.

"This is due to the short summer campaign or summer round-up of children which the Bureau of Education and the National Congress of Parents and Teachers have carried on as a part of their two years' program to encourage the home to assume its responsibilities to send children to school who are ready to be taught, instead of bundles of parental mistakes to be corrected.

"Included in this campaign is the competition of parent-teacher associations conducted by the National Congress of Parents and Teachers to develop the best method and the best results in securing the entrance into the first grade of school a class of children 100 percent perfect in health in September, 1925."

Three prizes were offered as an incentive to organizations to enter the contest. The judges of the competition were the United States Commissioner of Education; the National Chairman of Child Hygiene, National Congress of Parents and Teachers; and the editor of the *Delineator*. Articles submitted contained accounts of the methods used in carrying on the campaign, the community cooperation secured, and the results obtained. All participating parent-teacher associations received certificates, and any organization securing the entrance in the first grade of a class 100 percent free from

[1] Lombard, Ellen C.: Remove Remediable Defects before Sending Children to School, School Life, Vol. XI, No. 2, Oct., 1925.

remediable defects received another type of certificate signed by the three judges. Approved score cards indicating physical fitness of children entering first grade and containing form for physical examination and weight-age-height tables, approved by leading health specialists, were distributed by the National Congress of Parents and Teachers.

Several states departments of education took an active part in the campaign. The campaign will continue through 1926.

A local plan. A practical demonstration of the pre-school health work is shown in the Kansas City, Missouri, Childrens Bureau, which states its purpose and plan of work as follows:

"PURPOSE"

"The ills of childhood are largely preventable, and if not arrested in their earliest stages, are most wasteful of children's vitality and costly to the community. Children suffer and die because parents lack the skill to recognize signs, have no sure knowledge of prevention, and suppose that these ills are unavoidably the common lot of childhood. This attitude is not confined to so-called "ignorant" parents, but is shared by some intelligent and progressive people. While these may have education, it is not the kind demanded by their duty as fathers and mothers. Fifty-four percent of the city's infant deaths occur among babies under one month old. The Bureau knows that this condition exists, not because parents do not love their children, but because they do not know how to care for them. It has, therefore, taken as its special province the education of parents for the prevention of the ills of childhood. It also strives to make them realize that they cannot safeguard their own unless they safeguard all, and to rouse the civic and parental interest which will demand adequate information, and will lead to the support of the Bureau's work, both by precept and by *example*.

"PLAN OF WORK"

"This purpose is effected by:

1. Using school districts as units of work.
2. Educating all workers.
3. Taking a yearly census of pre-school children.
4. Making a physical examination of every child once a year.
5. Following up each case found by the physician to need attention, to learn if it has been given, and where necessary, assisting parents to get children to physician, clinic or hospital. (The Bureau gives no prescriptions and no treatment.)
6. Keeping in a permanent file the physical history of each child, for the information of parents, the Board of Health and the School Board.
7. Educating parents and the general public in the physical needs and proper care of children from birth to school age.
8. Promoting the formation of classes in home hygiene, pre-natal care, nutrition of infants, home nursing and formation of health habits; and taking

into individual homes information as to the safe environment and the training of little children.

9. Organizing, promoting and directing Well Children's and Pre-Natal Stations where examinations may be made weekly."

NURSERIES AND NURSERY SCHOOLS

To cover most of the pre-school period (practically from the time the mother ceases breast feeding the infant until the child enters elementary school), two types of institutions have been devised: (1) The nurseries, which meet an economic necessity created by the fact that the mother must go to work. Nurseries are part of a charity campaign but not part of a health campaign or an educational campaign. (2) The nursery schools, which are planned and organized from the health and educational point of view to include such objectives as, (*a*) general physical care, such as rest, exercise, and proper diet; (*b*) general hygienic maintenance of nursery routine; (*c*) medical supervision for control of epidemic disease and for discovery and correction of physical defects; (*d*) raising the standards of home life.

In such schools three dominant purposes, the importance of which is recognized increasingly, are, (*a*) the creation of an educational program, for the pre-school period; (*b*) research into the growth, capacities, and needs of the pre-school child; (*c*) parental education.

In England the nursing homes and nursing schools are intended primarily for healthy infants and young children who require mainly physical care and attention because the mother is engaged in daily work away from the home, or in cases of temporary distress. They are believed most suitable for children from three months to three years. From two to five years they may be established or assisted by educational authorities, where warranted, under the Act of 1919.

Historically the first such school was established in 1774 in Walbach, France, by Oberlin to help offset the effects of war on the fortunes and morale of the villages. In 1801 the first creche was established and numerous others soon followed till in 1848 they became required establishments of public instruction in villages of two thousand or more inhabitants under the title Ecole Maternelle and might be attended by children from two to six. Formal instruction was emphasized rather than hygiene.

In Great Britain at New Lanark, Scotland, in 1800 Robert Owen[1] established an institution for runabouts.[1] Owen was distinctly modern in ideals. He did not believe in formal instruction in nursery schools but, through the work of some of his followers, formal instruction soon was overemphasised, as was discipline. In the United States, Boston had the first school of this type in 1816.

The nursery school of the present day is more highly developed and is planned to be a private nursery enlarged. The idea is still on trial and its fate will depend upon its educational effect upon the home. Excellent examples are (*A*) the New York Nursery School of the New York Bureau of

[1] Gesell, A.: the Pre-school Child, Houghton Mifflin Co., 1923.

Education where the investigative side is emphasized; (*B*) the Ruggles Street Nursery School in Boston which has met with the utmost success; (*C*) The most notable school of this type, is the Merrill-Palmer School of Home Making and Motherhood at Detroit, where the following lines of activity are pursued:[1]

"(1) Education of young mothers in the care and management of children.

"(2) Use of the nursery school as a laboratory for

(*a*) Training of young women.

(*b*) Education of mothers of children in the school.

(*c*) Research in physical growth, mental growth and life of young childhood.

(*d*) Development of a technic for the best physical and educational care of the pre-school child.

(*e*) Extension work (not related directly to the nursery school), which has been done in developing courses in home making for public and parochial schools, in which children are physically a part."

(*D*) The Institute of Child Welfare Research at Teachers College, Columbia University gives promise of many important contributions to the field of nursery school and parental education; to research on the health and growth of young children; and to other fields undetermined as yet because of the very recent founding of the Institute (1925). Under the directorship of Dr. Helen T. Woolley, formerly of the Merrill-Palmer School of Home Making and Motherhood, the Institute may be expected to take its place among the outstanding organizations in its field.

(*E*) The Nursery School of the Iowa Child Welfare Research Station. This Nursery School emphasizes research.

The nursery school is an important means of educating parents and securing the execution of plans for physical and mental hygiene in young childhood. Pediatricians, nurses, parents, psychologists, and educators have united to make significant contributions to the nursery school plan.

THE KINDERGARTEN

The *kindergarten* is planned to care for the older pre-school child, in fact at present, it is frequently developed as an intrinsic part of the school system. The busy mother is much inclined to welcome it as a method for relieving her of part of the activities of caring for the child at an age of great demands upon her. Although considerable reform may be required in kindergarten work, undoubtedly the present-day ideas have a marked effect upon the home and the plan offers great possibilities for future development from the health point of view. The health programs at present are inadequate in most cases, chiefly consisting of casual instruction in a few health habits, with some sort of unorganized medical service. A marked tendency toward improvement of pre-school health service prevails among the more progressive institutions.

[1] Woolley, Dr. Helen T.: Personal communications.

The kindergarten plans offer certain benefits and presents certain dangers as carried out at present.

The possible *benefits* include: (1) Permitting the mother, during the child's hours at such schools, to perform many duties in the home; to permit her to have periods of rest and recreation less possible otherwise; and to relieve her of part of the nervous strain attendant upon the supervision of a runabout child. (2) Promoting the child's physical and mental health (*a*) by physical (health) examinations which assure early discovery of physical defects; (*b*) by early training under skilled teachers, having in mind the fullest development of the child's character and personality rather than formal learning of facts; (*c*) by teaching the child early to live the life of health; (*d*) by providing a more favorable environment than many homes can furnish, especially where both parents must work outside the home and the care of the runabout must be left to other persons.

The *dangers* are chiefly those arising from (1) too formal environment, sometimes known as "institutionalization;" (2) attempts to anticipate the work of the lower grades in school in an effort to assure early graduation or a maximum of learning. In other words the dangers lie in possible attempts to divert these years from the fundamental plan of developing the child to the utmost through properly directed play; (3) careless, poorly developed health programs resulting in false impressions of the pupil's health, and in danger of epidemics of disease in a group whose immunity is at its lowest level in life.

In 1885 Froebel's meditations became a reality upon the establishment of the first kindergarten, in the United States, largely through his labor.

Montessori, as a part of a model tenement enterprise, established her "Houses of Childhood" where the children were kept eight hours a day under trained supervision. The schedule was made up largely of exercises of practical life combined with hygienic routine. These children of four and five learned their three R's with considerable success. In the United States many progressive kindergartens used Montessori's apparatus and modified her ideas but rarely followed her methods strictly.

BASIC NEEDS OF THE PRE-SCHOOL HEALTH PROGRAMS

Before nursery school age, *preventive measures in pre-school work* are based on these fundamentals: (1) Thorough prenatal work minimizes the possibility of congenital defects and (2) satisfactory infant welfare work considerably lowers infant mortality and preventable diseases of young children—and these purposes are being accomplished.

Digestive disturbances are the most common handicap in the child's first year or two. Health work is planned accordingly.

At present the chief difficulty unmet lies in the period between the child in arms and the child in school, that is from about one year to six years of age, or the "runabout age."

During this latter period it might reasonably be expected that the child would be protected from contagious disease both through avoidance of exposure and through artificial immunity to such diseases as diphtheria, scarlet fever, and smallpox. The high incidence of diphtheria in the pre-school

period warrants the almost universal use of the immunizing toxin-antitoxin doses, avoiding the added discomfort, however slight, of the first Schick Test, and giving only one Schick Test and one Dick Test about six months after the immunizations, in order to determine if the dosage of immunizing materials has been sufficient to insure immunity for the given individual—to make it possible to guarantee protection against diphtheria, for example, for at least eleven years. Through early discovery and immediate entrance upon treatment of the other contagious diseases we may hope for the lowering the incidence of unfortunate sequelae which so frequently result in health handicaps which place physical or even mental limitations on the school career of too many pupils.

Nutrition of young children must be carefully considered from all points of view. If satisfactory, it must be continued so; if faulty, the cause must be found and eliminated if possible, otherwise physical conditions must be regulated to permit overcoming the results of a non-remediable defect as far as possible. This means provision for food suitable for the individual and implies education of the parent where the child is at home, or right diet under other circumstances.

Defects of body or mind must be discovered and remedied at the earliest possible moment, thus avoiding the cumulative effect otherwise bound to occur. Where remedy is not possible, suitable means must be provided for minimizing the existing handicap.

For all these reasons, there is needed a health program which will (1) educate the parents in their full duties and responsibilities toward their offspring and (2) educate the child as early as possible in the formation of habits, attitudes and practices conducive to good mental and physical health and right living as a member of a large group in which he must soon take his place.

The psychology of this whole period is of the utmost importance. The mental hygiene movement as far as it concerns these children requires nothing more than right "bringing-up" provided suitable recognition is made of true conditions; and actions of the parents are wisely directed. This age must be well studied; unfortunately is too little understood, although it is recognized as a most crucial period in character training and therefore mental health. Character development is undoubtedly one of the primary functions of this period.

The physical development of the children from the infant in arms to the school age must be carefully guarded and certain phases require special interest, and are described below:

1. The teeth require careful watching throughout this whole period. The tables in the dental chapter give standards for eruption of teeth. Too often "its only a milk tooth" has resulted in the loss of the "keystone of the dental arch." Constant attention to cleanliness must be supplemented by regular visits to the dentist for temporary fillings and orthodontia. Dental habits begun at this age may well postpone that dread old-age loss of teeth, to say nothing of defeat of dental infections through never permitting them to occur. The present-day opinion of the close relation between

mental instability or deficiency of certain types, and toxic foci gives us added reason for early interest in and care of the teeth. Hence, general physical and mental development are materially aided by proper care of the teeth.

2. Eye defects, such as near-sight, far-sight and astigmatism may and must be discovered early and relieved by suitable glasses. Squint of certain types develops between two and five years of age and is most amenable to treatment at that time. Infections of all types need early discovery and treatment although these are less likely to be neglected because the manifestations are so striking.

3. Ear, nose and throat defects are most common and often necessitate removal of the tonsils and adenoids. The pre-school age offers a splendid opportunity for this with the least discomfort and the least danger to the child.

4. Orthopedic defects of all types, from infections of the bone (tuberculous or otherwise) to faulty posture, are best given early care. Those which are the sequelae of rickets can be absolutely avoided if cod liver oil is given to young children as a routine and if proper care is given to the feeding of the child, thereby avoiding the rickets.

5. Defects of the nervous system are varied. They may be anatomic or physiological, as well as psychic. Some permit remedy, often through removal of some physical defects. Bed wetting and masturbation are both met during this period and both have good prognosis if sensibly handled. Bed wetting is commonly made worse by the customary family methods and the nervous background is aggravated. All authorities are not in accord but the psychological principle of rewards rather than punishments is said to be the most effective, when combined with omission of dwelling upon the fault. Children of low mentality persist in bed-wetting far into school age. Urologists are almost universally of the opinion that masturbation occurs in practically all boys, and in itself, if not allowed to become a habit, does not do serious harm. In young children the habit is more common in girls. In either sex, investigation for some irritating factor such as an anatomical abnormalities of the organs, inflammation, irritation from acid urine, worms, improper clothing, should be undertaken and the necessary correction made. The beginning is often innocent and this should be remembered in dealing with such cases.

6. Stuttering, stammering, backwardness in speech and deafmutism all are found in the preschool child but may be lessened or relieved by early recognition and early care of suitable sort.

Taking and recording the child's weight and height at intervals of a week in the first year or two and at least once a month thereafter, and comparing them with the Woodbury Tables is a simple and satisfactory method of looking after the child's physical welfare, especially if supplemented by regular health examinations. The Woodbury Tables are printed in the Chapter on Weighing (page 81). They are used like the Baldwin-Wood Tables for school children.

Physical examinations are too commonly delayed till entrance to school and, too frequently, it is the practice in schools to delay the thorough exami-

nation, if it is ever given, until a little later in the school career. Lucas[1] urges beginning of examinations at an early age and believes these must consist of stripping the child and a thorough going-over by a competent physician. He advises "four such examinations in the second year, three in the third year, and at least two each in the fourth, fifth and sixth years." Most authorities believe in very similar standards. It seems quite evident that the nursery school and kindergarten are strategic points for carrying out such examinations. The advantages of this plan are many. The child on entry to school has fewer defects to militate against success; his physical condition is thoroughly known to the parent who is therefore not startled into action by some surprising discovery of the school physician; unfortunate sequelae are often avoided, and the parent actually is assuming a burden which is now too readily passed on to the school where exceptional medical service is frequently expected but where the taxpayer is not so desirous of furnishing a sum of money adequate for such ambitious schemes.

Clothing must be well fitting but loose and hang from the shoulders instead of from the waist. No restricting bands or garters may be used about the limbs but stockings must have garters attached to the undervest, which hangs from the shoulders. On the other hand, studies at the Merrill-Palmer School seem to indicate that bands about the upper end of the stocking are best, provided such bands are not too tight and thus restrict circulation. Shoes must in no way restrict the feet and must be of soft pliable material. Good fit is essential. For the very young child very broad toes are desirable and slightly older children require broad toes. Late in the preschool period, children require a narrow shank, broad heel and toe, straight inside line of shoe with inward swing of the fore-foot. Short socks are very satisfactory, although the knees may have to be covered in very cold weather.

The diet begins with milk, often variously modified, and, with gradual and suitably introduced additions, will eventually consist of:

1. *Milk.* Both as such and with cereal and puddings, and disguised in cream soups, vegetables, custards, blanc mange, simple puddings and cocoa.
2. *Bread and butter.* The bread being graham or entire wheat and at least one day old, butter being freely used and no substitutes permitted since the latter lack the elements needed for growth.
3. *Cereals.* Especially oatmeal or rolled oats, with plenty of good milk and little or no sugar.
4. *Vegetables.* Especially carrots, onions, spinach, beets, beet-greens and lettuce, with baked potatoes when possible.
5. *All fresh fruits in season and dried fruit.* As sauce or in simple deserts.
6. *Meats simply cooked.* Eggs, peas and beans; avoiding fried foods, pork and sausage.
7. *Fats.* Especially butter-fat as butter, cream and whole milk; with bacon and olive oil also considered satisfactory.
8. *Sweets.* Sparingly used and then only at meals.

[1] Lucas, W. P.: The Health of the Runabout Child, Macmillan, 1923.

AVERAGE DAILY ENERGY REQUIREMENT OF CHILDREN PER UNIT OF BODY WEIGHT[1]

Age in years	Calories per kilogram	Calories per pound
Under 1	100	45
1–2	100–90	45–40
2–5	90–80	40–36
6–9	80–70	36–32
10–13	75–65	34–30
14–17	65–50	30–23

[1] Rose, Mary Swartz; A Laboratory Handbook for Dietetics. Macmillan Co., 1923, p. 13.

AVERAGE TOTAL ENERGY REQUIREMENT OF CHILDREN[1]

Age	Calories per day	
	Boys	Girls
Under 2	900–1200	900–1200
2–3	1000–1300	980–1280
3–4	1100–1400	1060–1360
4–5	1200–1500	1150–1440
5–6	1300–1600	1220–1520
6–7	1400–1700	1300–1600
7–8	1500–1800	1380–1680
8–9	1600–1900	1460–1760
9–10	1700–2000	1550–1850
10–11	1900–2200	1650–1950
11–12	2100–2400	1750–2050
12–13	2300–7000	1850–2150
13–14	2500–2900	1950–2250
14–15	2600–3100	2050–2350
15–16	2700–3300	2150–2450
16–17	2700–3400	2250–2550

[1] Sherman, H. C. and Gillett, Lucy: Food Allowances for Healthy Children. Association for the Improvement of the Condition of the Poor, 105 East 22nd Street, New York City, 1917.

HOURS OF SLEEP

"While recent studies indicate that, within a reasonable range, the amount of sleep needed by the child is an individual matter, still, for the great majority of children, the hours in bed daily, as stated in the following table[1] are distinctly advantageous for the best health and growth.

"AGE	TIME	HOURS
4–6	6 P.M.–7 A.M.	13
6–8	7 P.M.–7 A.M.	12
8–10	7:30 P.M.–7 A.M.	11½
10–12	8 P.M.–7 A.M.	11
12–14	8:30 P.–M..7 A.M.	10½
14–16	9 P.M.–7 A.M.	10
16–18	10 P.M.–7 A.M.	9 "

[1] The Health of the School Child. Published by the Parents Association, Horace Mann School, New York, N. Y.

CHAPTER XXI

THE HEALTH OF THE CHILD IN INDUSTRY

Economic necessity compels the human race, when able, to earn. In the average home, youth must perform household tasks (indoors and outdoors) which increase with the child's age, in importance and in physical and mental demands upon the performer. In certain lands an early apprenticeship into the family industry is the rule, as in the case of the German toymakers. It is but a step from such a plan, to employment of the child by person outside the family in tasks supposedly suited to the youth's physical and mental ability to perform them.

Students of the child labor question admit that, sooner or later, youth must earn. The difficulty is to determine at what age this is permissible and what tasks are suited to the given individual. Physical development must take place in normal fashion and mentality must not be stunted lest life be shortened and made less worth living, and the best possibilities of a child as an individual and a citizen be forever kept an unsolved mystery.

In addition to historical reports on the abuse of child labor, hazards are noted today from Japan where young children work in lacquer factories where an important constituent of the lacquer is material from a plant of the poison ivy group. In the United States undesirable practices are found in the cotton fields, where young children spend long hours in picking, just as they are now said to do in the sugar beet fields and in truck gardening; in the sweatshops assisting in the making of garments or artificial flowers and other articles, now said to be done in the home under equally bad conditions; in the shrimp and oyster industry of the Gulf States; in the textile industry, in the coal mines, and elsewhere.

The present purpose of those who really understand the child labor problem is rather toward (1) providing suitable working conditions, (2) determining the suitable age for engaging in a definite task, (3) learning what physical fitness is needed for it, and (4) then following the working child's health until such years as he or she should be able to assume this responsibility alone. The desire is to provide adequate education for a given individual that his character and citizenship may not suffer. At the same time the educational tests have proved, what has been suspected previously, that individual aptitudes and abilities vary and that careers must, if successful, be determined by the mental and physical fitness and equipment of the individual.

The practice in other countries is not of sufficient value to warrant extensive elaboration of such a phase of the problem here. However, of the utmost significance is the action of England in 1921, in revising her code of 1901 and making the minimum age fourteen instead of twelve years.

In the United States the first Federal Child Labor Law was passed in Sept., 1916, and forbade the employment of children under 14 years of age in manufacturing establishments, and provided the conditions under which children between 14 and 16 might legally be employed. The administration was lodged in the Children's Bureau in which a Child Labor Division was soon organized. The Federal act prohibited the shipment in interstate or foreign commerce of products manufactured under illegal conditions. This law was declared unconstitutional May 15, 1922. In 1924–1925 the following Child Labor Constitutional Amendment passed Congress but was defeated by state referendums for ratification:

Section One. The Congress shall have power to limit, regulate, and prohibit the labor of persons under eighteen years of age.

Section Two. The power of the several States is unimpaired by this article except that the operation of State laws shall be suspended to the extent necessary to give effect to legislation enacted by the Congress.

In 1919 the Children's Bureau conferences adopted as minimum requirements for permits for children to enter employment (1) a physical examination by a physician; (2) the child to be of normal development for one of his age, and (3) physically fit to perform the work for which he would be employed; (4) annual physical examinations for all working children under 18 years of age; (5) the physician in all cases to be a public-school physician or other medical officer especially appointed for the purpose by the agency charged with the enforcement of the law.

In 1920 and 1921 a group of physicians, including the senior author, cooperated, as the Committee on Physical Standards for Working Children, with the Children's Bureau in making general recommendations regarding the physical-standard aspect of child labor. Summarized, the committee advised: (1) that the minimum age for entry into industry be 16 for the normal child, because of pubescence; (2) that between sixteen and eighteen, gainful labor should be permitted only if the child was of normal development, sound health and physically fit for the particular work at which he was to be employed; (3) entrance into industry should be preceded by a thorough physical examination by a medical officer appointed for the purpose (the employer supplying a written promise of employment stating the specific occupation for which the child would be used) and examinations to be made with the child stripped or in a special examination garment; where possible (4) re-examination should be made with each change of employer or with change to another type of work of different physical demands and hazards; (5) periodical reexaminations for all working children at least once a year by a public officer (medical); (6) centralized control of methods of examination in each State by the State Labor or other Department; (7) adequate provision for physical examinations of school and preschool children; (8) study by local administrative and medical officers of occupations in which children are employed and their effect on health; need of authoritative scientific investigation especially as regards rate of growth and development in industries of various sorts, morbidity as compared with non-industrial groups, fatigue studies, effect of employment of normal children and on certain defectives,

effect of employment in specific occupation on menstrual function and pelvic organs of adolescent girls and young women, types of work desirable for mental or physical defectives of certain types, hazards of industries where children are commonly employed.

As *minimum standards of physical fitness for children entering and working in industry*[1] the following were advocated:

MINIMUM STANDARDS OF PHYSICAL FITNESS FOR CHILDREN ENTERING AND WORKING IN INDUSTRY

1. Standards of normal development.

(*a*) Certificates should be refused to children who do not come up to the following minimum standards of height and weight for specified age, which are based on the most reliable experience and present-day practice. (Since at the present time children under 16 may be legally employed in a considerable number of States, minimum standards of height and weight are furnished for children 14 and 15, as well as 16, years of age.)

Age	Weight (in clothing)[1]	Height
14	80 pounds	58 inches
15	85 pounds	58 inches
16	90 pounds	59 inches

[1] When children are weighed without clothing, not more than 5 pounds should be allowed for clothing.

In exceptional cases, a child who falls below the prescribed minimum of height or weight may, however, be granted a certificate if, after examination by two physicians, it is found that this condition is a family or a racial characteristic, and that he is free from any other defects which would justify the refusal of the certificate.

(*b*) Certificates should be refused to children who do not show unmistakable signs of puberty.

Standards of sound health and physical fitness for employment.

(*a*) Certificates should be refused to all children who have the following defects:

1. Cardiac disease, with broken compensation.
2. Pulmonary tuberculosis or other evidence of serious pulmonary disease.
3. Active glandular tuberculosis.
4. Active tuberculous or syphilitic disease of joints or bones.
5. Total blindness. (Unless no further educational facilities can be provided for such children.)
6. Total deafness. (Unless no further educational facilities can be provided for such children.)
7. Trachoma.
8. Chorea.
9. Syphilides.
10. Hyperthyroidism.
11. Acute or subacute nephritis.
12. Hookworm.

All children who are refused employment certificates because of physical defects as noted under "*a*" should be referred to some appropriate person or agency for whatever medical or other assistance they need.

[1] Physical Standards For Working Children, Bureau Publication No. 79, of the Children's Bureau, U. S. Department of Labor, Washington, D. C., 1923.

(*b*) Certificates should be refused to all children pending correction of all serious remediable defects, such as:

1. Defective vision subject to correction by glasses.
2. Contagious eye and skin diseases.
3. Defective teeth: extraction or prophylactic care needed.
4. Malnutrition requiring supervision or medical attention and not under treatment.
5. Untreated inguinal or femoral hernia.
6. Diseased tonsils.
7. Defective nasal breathing requiring correction and not under treatment.
8. Discharging ears not under treatment.
9. Orthopedic defects not under treatment.
10. Intestinal parasites (other than hookworm) not under treatment.

All children who are temporarily refused employment certificates because of the existence of physical defects as outlined under "*b*" should be referred to the care of a public medical officer, school physician, family physician, or school nurse, who should make every effort to see that the necessary medical treatment or other care is secured for the child. As soon as such treatment has been completed, or the defect has been corrected, the issuance of the employment certificate may be recommended.

(*c*) Provisional certificates for a period of not more than three months may be issued on recommendation of the medical examiner under the following conditions:

1. Where treatment has been started but not completed, in such cases as:
   (*a*) Defective teeth.
   (*b*) Malnutrition.
   (*c*) Orthopedic defects.
   (*d*) Defective nasal breathing.
   (*e*) Discharging ears.
   (*f*) Intestinal parasites (other than hookworm).
2. Partial blindness.
3. Partial deafness.
4. Other defects (not specified under "*a*" and "*b*") which in the opinion of the medical examiner require supervision.

Children receiving provisional certificates shall be reexamined at the expiration of the provisional certificate, or at such intervals as the examining physician may deem necessary. If in the opinion of the examining physicians every conscientious effort has not been made to correct the defect during the provisional period, no new certificate shall be issued until correction has been obtained.

(*d*) All children who, because of their physical condition, or because of their family or previous history, show a tendency to weakness or disease of any organ should be excluded from occupations which would tend to aggravate that tendency.

Points to Be Covered and Methods to Be Employed in Physical Examinations

1. Items for inquiry.

(*a*) Information with reference to the following items should be recorded upon the examination record blank by the issuing officer or his clerk before the child is sent to the physician for examination:

1. Age.
2. Sex.
3. Color.
4. Nationality of father.
5. Nationality of mother.
6. Intended employer.
7. Industry.
8. Occupation.
9. Grade completed.
10. Child's previous industrial history.

(*b*) The examining physician should inquire into and record the condition found with reference to the following items:

1. Significant family history (medical).
2. Previous illnesses.
   (*a*) Scarlet fever.
   (*b*) Diphtheria.
   (*c*) Infantile paralysis.
   (*d*) Asthma.
   (*e*) Bronchitis, chronic.
   (*f*) Pneumonia.
   (*g*) Pleurisy with effusion.
   (*h*) Chorea.
   (*i*) Epilepsy.
   (*j*) Rheumatism.
   (*k*) Frequent sore throats.
   (*l*) Operations.
   (*m*) Vaccination (against smallpox).
   (*n*) Hospital or dispensary care.
3. Physical examination:
   (*a*) General physical condition:
      Height in inches and fractions.
      Weight in pounds and fractions.
      Nutrition.
      Anemia.
      Evidence of puberty.
      Menses (sp. abnormalities).
   (*b*) Skin:
      Parasitic diseases.
      Other diseases.
   (*c*) Eyes:
      Vision.
      Diseases.
   (*d*) Ears:
      Hearing.
      Diseases.
   (*e*) Mouth:
      Dental caries.
      Gingivitis.
   (*f*) Nasopharynx:
      Nasal obstruction.
      Tonsils—enlarged—diseased.
   (*g*) Glands:
      Enlarged.
      Infected.
   (*h*) Thyroid:
      Goiter simple—exophthalmic.
   (*i*) Chest:
      Deformities.
   (*j*) Lungs:
      Abnormal breath sounds.
      Abnormal dullness.
      Râles.
      Respiratory disease.
   (*k*) Heart:
      Apex-interspace.
      Sounds.
      Murmurs.

Pulse rate.
Heart disease.
(*l*) Abdomen:
Hernia, truss—operation.
Intestinal parasites.
(*m*) Orthopedic defects.
(*n*) Nervous system:
Chorea.
Other abnormalities.
(*o*) Kidneys:
Disease.
(*p*) Diabetes.

In making reëxaminations, physicians should cover the same points as in the first examination, and in addition should note in detail any changes in physical condition, either improvement or defect, and all diseases or operations the child may have had in the interval between the two examinations.

2. Use of previous examination records. Record of examinations made by school medical officers during the child's school period should when practicable be made available to physicians making examination of applicants for work permits.

3. Record card and instructions for use of examining physicians. For the purpose of securing uniformity in administration and in statistical analysis, the committee recommends the use of a uniform record card in all States where the law provides for a certificate of physical fitness for children entering employment.

Three forms of record card were tentatively approved by members of the committee, as follows:

(*a*) Form 1 providing on the face of the card for a record of the first examination only. Space on back of original form may be used for records of reexaminations. (5 by 8 card.)

(*b*) Form 2 providing on the face of the card for a record of the original examination and three reexaminations. (8 by 10 card.)

(*c*) Form 3 providing for a record of the original examination and three reexaminations, similar in detail to Form 2, except that both sides of the blank are used, making possible a smaller sized card. (5 by 8 card.)

It was finally agreed by the majority of the committee that Form 2 appeared to offer the smallest number of difficulties in administration and that it should therefore be the form printed in this preliminary report and thus made available for general distribution. Unprinted copies of Forms 1 and 3 have been submitted by the committee to the Children's Bureau, with the suggestion that they be made available to any interested persons upon request.[1]

Control of the situation is entirely in the hands of the individual states at the present time. While the state laws differ, the better ones are in harmony with the standards advised by the special Committee cooperating with the Children's Bureau, except that the general tendency is to use fourteen as the minimum age instead of sixteen.

The standards are usually in regard to age, (physical and educational), and are set up for a specified list of occupations. Hours of employment are limited in number and time. Occupations with practically any inherent physical hazard for the normal adolescent are forbidden.

[1] State and city officials and other interested persons may obtain copies of these forms upon application to the Children's Bureau, U. S. Department of Labor, Washington, D. C. Forms similar to Form 3 are in use in Indiana and in Wisconsin (physical examination mandatory in Milwaukee only), and sample copies, if desired, may be obtained upon application to the State Industrial Board of Indiana or the State Industrial Commission of Wisconsin.

The National Child Labor Committee[1] holds these minimum standards should be enacted and adequately enforced:

I. No child under fourteen (14) years of age to be employed, permitted, or suffered to work at any gainful occupation except in domestic service or agriculture.

II. No child under sixteen (16) years of age to be employed, permitted, or suffered to work:

1. At any work known and declared to be dangerous, injurious or hazardous for children under sixteen (16) years of age. Places and occupations known to be dangerous or hazardous for children under sixteen (16) years of age should be enumerated in the law, but authority should be delegated to some state board or commission to extend the list.
2. After 7 p.m. or before 6 a.m.
3. For more than 8 hours a day or 6 days or 48 hours a week.
4. Or unless the employer procures and has on file a work permit issued by a proper school official upon the following conditions, except that no work permit is to be required for employment in domestic service or agriculture.
   (*a*) A promise of employment by the prospective employer showing the exact nature of the work.
   (*b*) Legal evidence, documentary wherever possible, that the child is of legal age for that specific employment.
   (*c*) Evidence that the child has completed the 8th grade of the public school course or its equivalent. If all other requirements are complied with, this requirement should be waived during the time when the public school of the district in which the child resides is not in session, a special vacation work permit being issued.
   (*d*) A statement by an authorized physician showing that upon examination he finds the child of such development and in such state of health as makes him physically fit for his particular employment.

III. No child under eighteen (18) years of age to be employed, permitted or suffered to work at any occupation or in any place known and declared to be dangerous, injurious or hazardous for children under eighteen (18) years of age. Places and occupations known to be dangerous or hazardous for children under eighteen (18) years of age should be enumerated in law, but authority should be delegated to some state board or commission to extend the list.

Administration is largely a local matter, with state officials acting as inspectors of working conditions and the state bureaus, like the federal bureau, available chiefly for advisory purposes. The correlation between the enforcement of these laws and the compulsory attendance laws is close. The question of enforcement offers great difficulty at present since careless and inadequate enforcement of existing laws is frequent, perhaps because of popular desires and political indifference or hostility. Many states permit exemptions which militate against the success of the whole project. Farm work or domestic service are rarely regulated except through compulsory attendance laws.

The business of the state and federal inspectors is to discover these hazards and see that they are minimized. The attitude of the important insurance companies in this regard has also necessitated the employer remedying bad situations as much as possible, if for no other reason than obtaining a low insurance rate. The present day employer has shown by the installation of excellent health projects in many industries that he believes guarding

[1] The Child Labor Complication in 1925, National Child Labor Committee, 215 Fourth Ave., New York City.

his employees' health is a business asset. At times the employer is willing to assist in this matter further than his employees care to accept, as in the instances where physical examination of adults before employment is not permitted by employees.

To secure a working card it is customary to demand that a child have attained an educational minimum. This minimum varies from no specification to completion of the fourth grade or more. Some states make special provision for those who are mentally incapable of completing work beyond a certain stage. Attendance in a Continuation school is often demanded and when in daytime, this is usually required to be considered part of the working day. This last has been a source of administrative difficulties to employers. On the other hand, night continuation schools are believed by many authorities to place too much added physical and mental burden upon the working child.

A physician's certificate of physical fitness is mandatory in some states; in others no provision is made. The examining officer is commonly connected with the school department and customarily the service is without charge, although the child may usually choose any examining physician desired. Too often no definite office hour is provided for this work and the child may frequently be required to go to one office for part of the certification, thence to the physician's office for the medical examination, waiting there some time or even having to return on another occasion, always having to return to the first office for his working permit, thus resulting in confusion, delay and dissatisfaction. A regular time and place for examination, preferably in the certificating office, is a necessity.

Reexamination is sometimes done on change of position or employer but occasionally not at all. To date, only Virginia requires a return to the certificating office after a year, for a physical reexamination; the certificate being otherwise invalid.

The keeping of cumulative records and reference to these at each examination is the coming practice but frequently few or no records are kept.

The length of working day, when specified, varies from eleven to eight hours, with a tendency toward the latter figure. The week is from 48 to 60 hours. Work may not continue after from five to nine o'clock in the evening nor begin earlier than from five to eight a.m., since the different states, when specifying at all, have their minimums somewhere in these ranges of hours.

At present little tendency is shown toward assisting the child to secure suitable employment. Some vocational guidance is needed. Possibly such advice might help materially to avoid the present adolescent labor turnover and to avoid employment officers wasting so much time with child laborers as a result.

Summarized —certain pieces of evidence must be furnished by the child in securing the working card: (1) proof of age by some reliable document or physician's certificate; (2) evidence of fulfilling specified educational requirements; (3) certificate of physical fitness from a physician; (4) promise of employment signed by the prospective employer.

Records of Intention to Employ

COMMONWEALTH OF VIRGINIA
BUREAU OF LABOR AND INDUSTRIAL STATISTICS
OFFICE OF COMMISSIONER
RICHMOND, VIRGINIA

INTENTION TO EMPLOY

Form _____

Name of child _____

Name of establishment or employer _____

Kind of work _____ Nature of business or industry _____

Child begins work _____ Quits _____ Lunch period from _____ to _____

Hours employed per day _____ per week _____

The undersigned intends to employ above named child in accordance with the provisions of Chapter 489, Acts of 1922, and agrees to send the notice of the commencement of employment within seven days after the child begins work, and to return the certificate of employment to the Issuing Officer within seven days after the child's employment terminates.

_____, 192_____ _____
(Date)

_____
(Signature of Employer or Authorized Agent)

_____
(Address)

FIG. 236. Virginia. Gray card 4″ × 6″. Contains a careful statement of what the child will do and when he is expected to do it.

STATE OF NEW JERSEY
DEPARTMENT OF PUBLIC INSTRUCTION

EMPLOYER'S CERTIFICATE

_____ Date _____
(Place)

This is to certify that _____

ha_____ employed _____

at a weekly salary of $_____ that said _____

is employed as _____
(State nature of work)

that said employment began _____, 192_____

and that _____ he has surrendered to _____ the age and schooling certificate issued to

_____ dated _____, 192_____

I hereby agree, in accordance with chapter 35, P. L. 1919, to permit said _____

to attend a continuation school during the hours said school is in session for at least six hours per week for a period of at least thirty-six weeks each year.

Dated _____, 192_____

_____
(Employer)

_____
(Street address)

Note.—This certificate is to be filled out by the employer and returned to the supervisor of school exemption certificates of the school district in which the age and schooling certificate was granted within two days after the child begins to work. (Chapter 223, P. L. 1914.) (Chapter 35, P. L. 1919.) See reverse side of this sheet

FIG. 237. New Jersey form, 7″ × 8½″. Extracts from the School law are on the back.

PROMISE OF EMPLOYMENT

REQUIRED BY ACTS OF 1913, CHAP. 779, SECT. 16, FOR CHILDREN 14 TO 16 YEARS OF AGE

NAME OF CHILD WHOSE EMPLOYMENT IS PROMISED | FACTORY NUMBER

FIRM NAME OF EMPLOYER

ADDRESS OF EMPLOYER

CITY OR TOWN | STREET AND NUMBER

NATURE OF EMPLOYMENT TO WHICH CHILD NAMED IS TO BE ASSIGNED | NUMBER OF HOURS PER DAY DURING WHICH THE CHILD NAMED HEREON IS TO BE REGULARLY EMPLOYED

THE UNDERSIGNED HEREBY AGREES TO EMPLOY THE ABOVE-NAMED CHILD IN ACCORDANCE WITH THE FACTS AS ABOVE SET FORTH AND IN COMPLIANCE WITH THE PROVISIONS OF CHAPS. 779 AND 831 OF THE ACTS OF 1913 AS SOON AS SAID CHILD PRESENTS TO HIM AN EMPLOYMENT CERTIFICATE AUTHORIZING THE EMPLOYMENT OF SAID CHILD BY HIM. THE UNDERSIGNED FURTHER AGREES TO RETURN THE SAID EMPLOYMENT CERTIFICATE TO THE OFFICE OF THE SUPERINTENDENT OF SCHOOLS FROM WHICH IT IS ISSUED WITHIN TWO DAYS AFTER THE EMPLOYMENT OF SAID CHILD TERMINATES. (PENALTY FOR FAILURE TO RETURN CERTIFICATE $10 TO $100)

DATE | SIGNED BY

EMPLOYER, AUTHORIZED MGR., SUPERINTENDENT

PHYSICIAN'S CERTIFICATE OF HEALTH

REQUIRED BY CHAP. 779, ACTS OF 1913

THE UNDERSIGNED HEREBY CERTIFIES THAT HE HAS THOROUGHLY EXAMINED THE FOLLOWING-NAMED CHILD

AND THAT IN HIS OPINION SAID CHILD IS IN SUFFICIENTLY SOUND HEALTH AND PHYSICALLY ABLE TO PERFORM THE WORK INDICATED ON THE REVERSE SIDE OF THIS CERTIFICATE IN THE SECTION GIVING THE NATURE OF EMPLOYMENT TO WHICH THE CHILD NAMED IS TO BE ASSIGNED.

DATE | SIGNED

SCHOOL, FAMILY OR APPOINTED PHYSICIAN

FIG. 238. Both sides of the well-known Massachusetts "yellow card." 3″ × 5″. On one side the Promise of Employment, on the other the Certificate of Health. For a record of the physical examination see pages 584 and 585.

Records of physical examinations. Practice varies as to the comprehensiveness of records demanded by the law; and in the case of the physical examination, great carelessness is too often the habit, although excellent examination standards and records are sometimes maintained.

C
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V

FORM B

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE DEPARTMENT OF EDUCATION

RECORD OF PHYSICAL EXAMINATION OF CHILD APPLYING FOR EMPLOYMENT CERTIFICATE
(Approved by the State Department of Health)

FULL NAME _____ RESIDENCE _____ DATE OF EXAM. _____

SEX _____ COLOR OR RACE _____ DATE OF BIRTH _____ AGE AT LAST BIRTHDAY _____ YRS. SCHOOL _____ GRADE _____

BIRTHPLACE _____ BIRTHPLACE OF FATHER _____ MOTHER _____ NO. IN FAMILY: ADULTS _____ CHILDREN _____ NO. OF BIRTH _____

PREVIOUS ILLNESSES (CHECK THOSE KNOWN)

MEASLES _____ DIPHTHERIA _____ MUMPS _____ CHICKEN POX _____ PNEUMONIA _____ MENINGITIS _____ RHEUMATISM _____ TUBERCULOSIS _____
SCARLET FEVER _____ PERTUSSIS _____ SMALLPOX _____ GRIPPE _____ TYPHOID _____ DYSENTERY _____ CHOREA _____ OTHER _____

VACCINATED _____ SCHICK _____ TOXIN ANTITOXIN MIXTURE _____

PHYSICAL EXAMINATION

COLOR OF HAIR _____ EYES _____ HEIGHT (WITH SHOES) FT. _____ IN. _____ WEIGHT (USUAL CLOTHES) _____ LBS. NUTRITION _____

VISION (BY SNELLEN CHART) _____ HEARING (WHISPERED VOICE AT 20 FEET) _____ OTHER CONDITIONS OF EYES OR EARS: _____

RT. 20/20 20/40 20/50 20/100 20/200 RT. 20/20 20/15 20/12 20/6 20/4

LT. 20/20 20/40 20/50 20/100 20/200 LT. 20/20 20/15 20/12 20/6 20/4

TEETH: CLEAN _____ NO. FILLED _____ NO. IN NEED OF FILLING _____ TONSILS _____ NASAL OBSTRUCTION _____

ENLARGED CERVICAL GLANDS _____ GOITRE _____ PULSE _____ POSTURAL DEFECT _____

NERVOUS DISEASES OR DEFECT _____ ANEMIA _____ PULMONARY DISEASE _____ DISEASE OF BONES OR JOINTS _____

SPEECH DEFECT _____ CARDIAC DISEASE _____ HERNIA _____ DISEASE OF SKIN _____

DESCRIBE FULLY BELOW ANY IMPORTANT DISEASE OR DEFECT NOTED ABOVE OR ANY OTHER DISEASE, DEFECT OR ABNORMALITY FOUND.

HEREBY CERTIFY THAT I HAVE EXAMINED THE ABOVE-NAMED APPLICANT AND FIND THAT HE HAS REACHED THE NORMAL DEVELOPMENT OF A CHILD OF H AGE AND THAT HE IS IN SOUND HEALTH.

EXAMINING PHYSICIAN _____

REEXAMINATIONS

DATE	HEIGHT	WEIGHT	SCHOOL GRADE	REEXAMINATION SAME AS ABOVE WITH FOLLOWING EXCEPTIONS	EXAMINING PHYSICIAN

DUPLICATE OF THIS RECORD IN EVERY CASE TO BE SENT TO STATE DEPARTMENT OF EDUCATION, ALBANY

C37-Je22-62,500(932)*

FIG. 239. New York State form. Record 7″ × 8″. A simple cumulative form.

FORM M 1922

MASSACHUSETTS DEPARTMENT OF LABOR AND INDUSTRIES

RECORD OF PHYSICAL EXAMINATION OF CHILD APPLYING FOR EMPLOYMENT CERTIFICATE

DATE_____

NAME ADDRESS SCHOOL GRADE

INTENDED EMPLOYER ADDRESS INDUSTRY OCCUPATION

1. SEX, M. F. 2. COLOR, W. C. O. 3. BIRTHPLACE OF CHILD 4. OF MOTHER 5. OF FATHER

6. DATE OF BIRTH 7. AGE YRS. MOS. 8. HEIGHT FT. IN. 9. WEIGHT LBS.

SIGNIFICANT MEDICAL HISTORY

PHYSICAL EXAMINATION

10. GENERAL PHYSICAL CONDITION
    A. EXCELLENT B. GOOD
    C. FAIR D. POOR
11. MATURITY APPARENTLY ATTAINED
    YES NO

SKIN AND MUCOUS MEMBRANES
12. COLOR
13. PARASITIC DIS.
14. OTHER DIS.

EYES
15. VISION R. L.
16. DISEASE R. L.

EARS
17. HEARING R. L.
18. DISEASE R. L.

MOUTH
19. DENTAL DEFECTS
    A. CARIES
20. OTHER DEFECTS

PHYSICAL EXAMINATION

NASOPHARYNX
21. NASAL OBSTRUCTION

TONSILS
22. NORMAL
23. ABNORMAL (SP)

CHEST
24. HEART
    NORMAL
    ABNORMAL (SP)
25. LUNGS
    NORMAL
    ABNORMAL (SP)

ABDOMEN
26. HERNIA

NERVOUS SYSTEM
27. A. CHOREA
28. B. TIC
29. C. SPEECH DEFECT

ORTHOPEDIC DEFECTS
30. (SP)

SUMMARY AND RECOMMENDATIONS

SUMMARY OF DEFECTS
31. A. CORRECTABLE
32. B. NON-CORRECTABLE
33. TREATMENT RECOMMENDED:

CERTIFICATE RECOMMENDED
34. A. UNCONDITIONAL
35. B. PROVISIONAL (SP)

REFUSED
36. A. PERMANENT (SP)
37. B. TEMPORARY (SP)

REMARKS:

I AM / AM NOT ACQUAINTED WITH THE PROCESS ON WHICH THIS CHILD IS TO BE ENGAGED.
CROSS OUT STATEMENT WHICH DOES NOT APPLY.

I CERTIFY THAT I HAVE EXAMINED THIS CHILD AND THAT THE FINDINGS ARE AS ABOVE STATED.

SIGNED:.....M.D., EXAMINING PHYSICIAN.

(THE SCHEDULE SHOULD BE MADE OUT IN DUPLICATE BY USE OF CARBON SHEETS, AND ONE COPY SENT TO THE DEPARTMENT OF LABOR AND INDUSTRIES, STATE HOUSE, BOSTON)

INSTRUCTIONS TO PHYSICIANS FOR FILLING IN RECORDS OF PHYSICAL EXAMINATION OF CHILDREN APPLYING FOR EMPLOYMENT CERTIFICATES

IN FILLING OUT RECORD BLANK, USE CHECK (X) WHERE DEFECT OR ABNORMALITY IS FOUND, AND DASH (—) WHERE CONDITION IS NORMAL
WHERE ITEM IS MARKED (SP) SPECIFY DEFECT OR CONDITION INDICATED.

GRADE—ENTER GRADE COMPLETED

INDUSTRY—SPECIFY, AS "COTTON MILL," **NOT** "TEXTILE."

OCCUPATION—SPECIFY, AS "DOFFER," **NOT** "MILL HAND."

COLOR—WHITE-COLORED-OTHER.

BIRTHPLACE OF CHILD—COUNTRY OF BIRTH.

BIRTHPLACE OF MOTHER AND FATHER—COUNTRY OF BIRTH.

HEIGHT—TO BE ENTERED TO NEAREST QUARTER INCH. THE CHILD SHOULD BE MEASURED WITHOUT SHOES.

WEIGHT—TO BE ENTERED TO NEAREST QUARTER POUND. THE CHILD SHOULD BE WEIGHED WITHOUT SHOES AND OUTER CLOTHING.

SIGNIFICANT MEDICAL HISTORY—BRIEF NOTATION OF PREVIOUS ILLNESSES.

GENERAL PHYSICAL CONDITION—TO BE DETERMINED BY SUCH FACTORS AS MUSCLE TONE, THE COLOR OF THE SKIN AND MUCOUS MEMBRANES, AND THE RELATION TO EACH OTHER OF HEIGHT, WEIGHT AND AGE. CHECK ON RECORD CARD CONDITION INDICATED AS FOLLOWS: EXCELLENT,—GOOD,—FAIR (REQUIRING SUPERVISION),—POOR (REQUIRING MEDICAL ATTENTION).

MATURITY APPARENTLY ATTAINED—EXAMINER'S IMPRESSION.

SKIN—PARASITIC DISEASES. HERE NOTE PEDICULOSIS, SCABIES, ETC.

EYES—A SEPARATE EXAMINATION AND RECORD OF THE VISUAL ACUITY OF EACH EYE SHOULD BE MADE, THE SNELLEN OR SIMILAR TEST CARD* BEING USED. ABILITY TO READ THE TWENTY-FOOT LINE AT A DISTANCE OF TWENTY FEET TO BE CONSIDERED PERFECT AND RECORDED AS $^{20}/_{20}$. RECORD IN FRACTIONS, THE NUMERATOR INDICATING THE DISTANCE BETWEEN CHART AND CHILD, DENOMINATOR INDICATING LINE READ BY THE CHILD (FIGURE SHOWN AT SIDE OF CHART.) IF CHILD IS UNABLE TO READ ANY OF THE LETTERS CORRECTLY AT TWENTY FEET, MOVE HIM TOWARD THE CHART UNTIL HE CAN SEE THE TOP LETTERS, AND MEASURE DISTANCE BETWEEN HIM AND THE CHART AND RECORD AS TEST. IF CHILD IS WEARING GLASSES, THE TEST TO BE MADE BOTH WITH GLASSES ON AND WITH GLASSES OFF. A CHILD WITH VISION OF $^{20}/_{30}$ OR LESS IN EITHER EYE SHOULD BE REFERRED TO AN OCULIST.

EARS—EACH EAR TO BE TESTED SEPARATELY, USING THE WHISPERED VOICE AT A DISTANCE OF TWENTY FEET. CHILD SHOULD STAND WITH EAR BEING TESTED TOWARD EXAMINER, AND OTHER EAR COVERED OR EXTERNAL CANAL OCCLUDED. IF HEARING IS DEFECTIVE, THE EXAMINER SHOULD ADVANCE SLOWLY TOWARD THE CHILD UNTIL HE CAN HEAR THE WHISPERED VOICE—MEASURE DISTANCE BETWEEN EXAMINER AND CHILD, AND RECORD IN FRACTIONS, $^{20}/_{20}$ BEING NORMAL. INABILITY TO HEAR THE WHISPERED VOICE AT TEN FEET OR LESS SHOULD BE CONSIDERED DEFECTIVE HEARING AND SHOULD BE REFERRED TO A SPECIALIST.

TONSILS—ENLARGED—DISEASED. VISUAL EXAMINATION OF THE THROAT TO BE MADE WITH THE USE OF TONGUE DEPRESSOR.

CHEST—EXAMINATION OF THE CHEST SHOULD ALWAYS BE MADE ON THE BARE SKIN.

LUNGS—TO BE EXAMINED BY PERCUSSION AND AUSCULTATION, USING THE STETHOSCOPE. ANY ABNORMAL CONDITION TO BE SPECIFIED.

HEART—TO BE EXAMINED WITH STETHOSCOPE. HEART DISEASE—SPECIFY VARIETY OF ORGANIC DISEASE AND COMPENSATION.

ABDOMEN—PRESENCE OR ABSENCE OF HERNIA TO BE DETERMINED BY QUESTIONING AND PHYSICAL EXAMINATION WHERE SUSPECTED. STATE WHETHER FOUND OR NOT. WHETHER TRUSS WORN, AND WHETHER OR NOT CHILD NEEDS OPERATION.

ORTHOPEDIC DEFECTS—GENERAL INSPECTION OF THE BODY TO BE MADE. ALL DEFECTS, INCLUDING IMPAIRED MOBILITY OR DEFECTS OF POSTURE MUST BE SPECIFIED. NECESSARY MEASUREMENTS TO BE MADE WHEN INDICATED BY ABNORMAL FINDINGS.

TREATMENT RECOMMENDED—NOTE TREATMENT RECOMMENDED FOR CORRECTION OF DEFECTS, AND TO WHAT AGENCY, IF ANY, CHILD IS REFERRED FOR TREATMENT. FOR EXAMPLE, REFERENCE TO DENTIST IN CASE OF DEFECTIVE TEETH.

CERTIFICATE—CHECK AS INDICATED AND SPECIFY PHYSICAL DEFECT CAUSING RECOMMENDATION OF REFUSAL OR OF PROVISIONAL CERTIFICATE ISSUE.

REMARKS—EXAMINER TO CROSS OUT "AM" OR "AM NOT", INDICATING IGNORANCE OR KNOWLEDGE OF THE PRECISE NATURE OF THE WORK FOR WHICH THE APPLICANT IS TO BE EMPLOYED.

*THE DEPARTMENT OF EDUCATION WILL FURNISH A NEW VISUAL TEST CARD FOR USE IN THE PUBLIC SCHOOLS IN THIS STATE

FIG. 240. Both sides of the Massachusetts form. Card is in duplicate, folding at middle. Files 5″ × 8″. Total size open 8″ × 10.″ Note the comprehensive examination and specific instructions to examiner. One card is used for each examination. This card requires little writing by the examiner. The junior author found this form satisfactory and practicable in use.

COMMONWEALTH OF VIRGINIA
BUREAU OF LABOR AND INDUSTRIAL STATISTICS
OFFICE OF COMMISSIONER
RICHMOND, VIRGINIA

Form_____

PHYSICIAN'S CERTIFICATE OF AGE AND PHYSICAL FITNESS

Name of child _____Code: G-good, F-fair, P-poor

Height _____ Lungs _____ Skin _____
Weight _____ Ears _____ Glands _____
Eyes: R_____L_____ Teeth _____ Nervous System _____
Eyelids _____ Throat _____ Deformities _____
Heart _____ Nose _____ General Health _____
Other evidence of physical age_____Physical age _____ Years

This certifies that I have this day examined the above named child and find said child to be of normal development, in sound health, and physically fit to work as_____
_____
(Occupation)
in _____
(Nature of business or industry)
REMARKS: _____
_____
Examining Physician _____ Title _____
Address _____ Date _____

TO THE DOCTOR: A child must be 56 inches in height and weigh 80 pounds to be certified as having reached the physical age of 14 years; and must be 57 inches in height and weigh 85 pounds to be certified as having reached the physical age of 16 years.
Physician signing must be a public health or public school physician.

FIG. 241. Virginia. Blue card 4″ × 6″. Simple but comprehensive.

Physicians' Certificates to Defectives

THE BOARD OF PUBLIC EDUCATION
BUREAU OF COMPULSORY EDUCATION
JUNIOR EMPLOYMENT SERVICE
SCHOOL DISTRICT OF PHILADELPHIA

_____ 192_____

TO THE PARENT:

This is to notify you that the Physical Examination of your child, _____, who is an applicant for an Employment Certificate, shows the following physical defects:

_____

_____

_____

_____

In accordance with the provisions of the Child Labor Act, the certificate cannot be issued until these defects are corrected.

HENRY J. GIDEON,
Director.

_____
Medical Inspector.

☞ If you are unable to procure the services of a private physician, or dentist, or of a dispensary, consult the principal of the school or call at this office for advice and help.

☞ This note must be returned by the minor if defects are corrected and application is again made for employment certificate.

☞ Unless defects are corrected immediately and application for employment certificate is made the next day the minor must return to school. The school record must be presented again if application is made later for employment certificate.

(OVER)

FORM C 180—PARENTS' NOTICE, REFUSAL OF CERTIFICATE, PHYSICAL DEFECTS—SCHOOL DISTRICT OF PHILADELPHIA

FIG. 242(*A*). See legend Fig. 242(*B*).

STANDARDS OF PHYSICAL FITNESS

(Established by the Department of Labor and Industry)

I. CERTIFICATE REFUSED under the following conditions:

(a) Tuberculosis—including all types.

(b) Organic Heart Disease—including endocarditis, myocarditis, pericarditis and circulatory disturbance causing persistent rapid pulse (120 or over).

(c) Graves Disease.

(d) Kidney Disease.

(e) Defective Vision—less than 15/45 (allowing the use of both eyes and eye glasses), except with certificate (see Article III).

(f) Any physical defect disqualifying the applicant in the opinion of the medical examiner.

II. CERTIFICATE REFUSED UNTIL CORRECTION OF DEFECTS as follows:

(a) Three or more decayed teeth.

(b) Defective Vision—15/20 or less, using both eyes, or 15/30 or less in either eye, provided proper eye glasses will improve the vision.

(When the vision is 15/45 or better (using both eyes) and a medical certificate is furnished stating that eye glasses will not improve the vision, the regular certificate may be used.)

When the vision is less than 15/45 the regular certificate cannot be granted (see Article III).

(c) Chronic Nasal Obstruction.

(d) Defective Hearing (unless accompanied by trustworthy medical certificate that treatment has been given without success) (see Article III).

(e) Malnutrition

(f) Marked nervous weakness, chorea or hysteria.

(g) Marked stoop shoulders, flat chest, or lateral spinal curvature.

(h) Hernia without truss.

(i) Contagious skin disease

(j) Any defect or disease disqualifying the applicant in the opinion of the medical examiner.

III. CERTIFICATE ISSUED ONLY FOR EMPLOYMENT NOT ABOUT POWER-DRIVEN MACHINERY.

(a) Epilepsy.

(b) Loss of one eye, arm or leg.

(c) Defective Vision—less than 15/45, allowing use of either eye and eye glasses. When a medical certificate is furnished by a reputable physician stating that eye glasses will not improve the vision, that no degenerative or inflammatory process exists in the eye, and that employment *not* about power-driven machinery is *not* dangerous to the child, a certificate may be issued for such employment.

(d) Defective Hearing—whispered voice not heard at two feet distance. A medical certificate by a reputable physician, stating that treatment has been given without success, must be furnished.

FIG. 242(*B*). Both sides of Philadelphia Form $5\frac{1}{2}'' \times 8\frac{1}{2}''$. Such a form should be sent to the parents of all rejected applicants. Note definite standards on back.

THE PRESENT SITUATION IN THE CONTROL OF CHILD LABOR

The whole child labor problem is still in the investigation stage. Unfortunate opinions, frequently based on obsolete reports, often European in origin, have done much damage and must be replaced by scientific data. Certain outstanding tendencies exist where the best practice obtains and these are worth noting:

1. It is recognized that a suitable system can not be installed in a given community in a brief period and the many local factors, including local public opinion, must determine the interpretation of the laws.

2. Enforcement, when successful, is through pressure of popular opinion and the value of any enforcement plan must therefore be demonstrated.

3. Inconvenience and delays in obtaining the employment certificate, objectionable features in the medical examination, lack of tact and cooperative spirit on the part of officials—always harm the program.

4. If the public is shown that a definite benefit to the health of the working child will result this more comprehensive health program for the health of the child laborer will be placed on a substantial basis.

A poor quality of service should never be permitted. Good cumulative medical records must be kept and must coordinate with the records of the child kept in the public schools, so that a very definite understanding of the child's previous physical career may be available. A satisfactory prognosis can then be made on the basis of past health record as well as present physical condition.

The physically and mentally unfit must be eliminated, it is true, but where possible they should be assisted to find positions suitable for them. Philadelphia has definite physical standards for refusal of certificates and sends a written notification stating reasons if card is refused. (See page 587.) New Bedford, Mass., has used a similar code and made some attempt at vocational guidance.

The individual must be suited to the given position and in case of doubt must be given a trial period to make good, or certificate must be refused. To judge physical and mental fitness adequately the examiner must be familiar with the different tasks undertaken. The examination is a highly specialized one and should be recognized as such.

To a few, the idea of examination is objectionable, and it is sometimes disliked by parents, especially if they suspect that the outcome will be refusal of the work permit. Children also may bring home false tales of findings. Each child examined must understand clearly the purpose of the work. Cooperation of parents is desirable. Often this cooperation can be secured through the home visits of the Continuation School teacher or nurse when such home visitor is employed.

Job analyses have determined clearly what positions are acceptable for normal children. In general these are the non-hazardous occupations. Working conditions in factories constantly improve and this must be kept in mind in determining standards. In many states, with the present satisfactory codes, already the chief need is to have the laws carried out.

Freedom from restriction begins at sixteen and is usually entirely complete by twenty-one, sometimes earlier. After sixteen only the demands of an educational nature are continued, the physical examination being no longer required by law.

The attitude toward correctable defects, such as certain types of poor eyesight, is important since the methods of certification make it possible to complete more fully school health work which should have cared for this matter and also actually to continue both preventive and corrective work into this adolescent group. Thus a child, faced with refusal of certificate, is often willing to secure necessary glasses, the purchase of which has been refused heretofore. The school health service thus assumes an added force.

The Continuation School is comparatively new. Educationally it offers new fields of limited educational progress to the child and tends to direct him to new interests or renew in him a desire for further schooling in which case he returns to school with serious desire to learn.

Those who have such preference are encouraged to return to the public schools. Certain guidance toward desirable social and moral development is attempted both through the classroom and through a definite social program of the school. Thus, better social and moral standards for this group are made possible and the function of the public school as a social and moral guide is thus absorbed by the Continuation school.

HEALTH WORK IN CONTINUATION SCHOOLS

The opportunities for vocational guidance and mental adjustments of the continuation school pupils are recognized by continuation school executives and teachers and pioneer efforts are being made in these fields.

But in health work lies the greatest possibility of the Continuation School. Here, where entrance is always preceded by physical examination and where knowledge of physical defects should be always available, health work can be continued at least (1) to the extent of monthly weighing and measuring; (2) home follow-up through the teachers and nurse, if there is one, with the resulting interest by the families in health defects because such defects are a hindrance to earning capacity.

Personal hygiene is taught customarily. In addition to this, courses for girls in home nursing, infant hygiene and home economics are most valuable and popular, and meet a definite, perhaps concealed desire, on the part of some girls who marry usually young. Such training is sure to have a favorable influence upon the future of these girls both as home-makers and mothers.

The brief time available in Continuation School is one of the strongest reasons for such courses, since any courses given must be intensely practical and of real value. Recently the attempts have been made to require the working adolescent of fourteen and fifteen years of age, to attend school half the week. The sponsors of this plan claim that it will offer these adolescents better opportunities for education and that it will also remove much of the doings of injury to growth and health which might occur if an individual

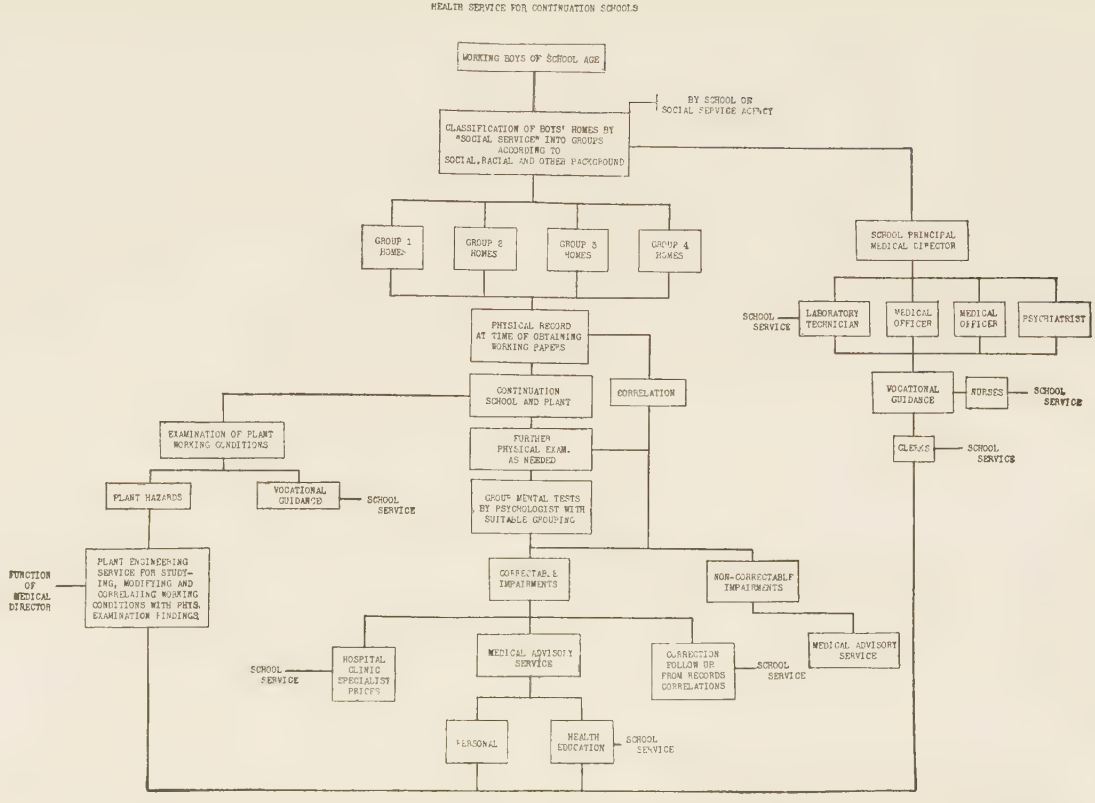

FIG. 243. A practicable plan for effective health promotion in a continuation school. Devised for a special project by a committee of industrial health experts and educational and public health consultants.

of fourteen or fifteen years of age engaged in too heavy labor for too long hours.

Emergency medical service is needed, if only to get the pupils into the habit of seeking a physician at suitable times. The close contact of the Continuation School has, at times, brought to light concealed disease, such as epilepsy, previously denied by the child, and serious accident at work possibly avoided thereby. The compulsary attendance laws often give the attendance officer opportunity to study the conditions under which the child works. The whole continuation school plan provides definitely for the better protection of the health of the group of working adolescents.

Certain recent studies by Rowell[1] have shown that when the above plan of control is properly carried out, the health of the child laborer of fourteen and over may be better than that of the grammar school pupil of similar age and education. It is equally true that bad working conditions and careless or absent supervision have resulted in permanent physical damage.

An example of incorrect vocational placements is shown in the table on page 593.

Plans for Subnormal Children

Any plan of child labor must provide for *subnormal children.* These are in two great groups—the mental and the physical.

The mentally deficient child is of various grades. Work must be suited to his mental resources and his personality. That this group can earn satisfactorily if correctly placed has been adequately demonstrated by Fernald and others. Many employers previously opposed to such persons as uncooperative and not altogether desirable, are now seeing in them a possible solution to the problem of filling certain positions, requiring no great mental effort. The Mental Hygiene movement resulted in a careful study of such children and the writings of Williams, Pratt, and others have presented most encouraging reports of assisted cases. Certain of the large strong adolescents, particularly boys (often presenting a severe discipline problem in school), become more tractable and useful when pushing a wheelbarrow, carrying bricks and other jobs fitted to their physique and mentality, and are better employed than in school after they have been taught to like work and to work hard.

The underweight child, placed in work requiring not too much expenditure of energy, with his additional income making possible better food, may at times show a physical improvement; and many a problem boy, just on the verge of an institution, is changed to a worthy citizen through the medium of a weekly pay envelope.

Children with irreparably poor vision, partial deafness, orthopedic defects; cardiacs in various stages: all these types represent special situations

[1] Rowell, H. G.: Recognition of Health as an Objective, School Health Studies No. 7. Dept of the Interior, Bureau of Education, Washington, D. C., 1924.

—PROPORTION OF PHYSICAL DEFECTS ACCENTUATED BY WORK CONDITIONS[1]

Type of Defect	Number and Per Cent of Defects in —															
	Children						Boys						Girls			
	Total		Accentuated		Not accentuated		Total		Accentuated		Not accentuated		Total		Accentuated		Not accentuated	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Defective posture	169	100.0	143	84.6	26	15.4	71	100.0	64	90.1	7	9.9	98	100.0	79	80.6	19	19.4
Flat foot	90	100.0	45	50.0	45	50.0	37	100.0	27	73.0	10	27.0	53	100.0	18	34.0	35	66.0
Low strength	50	100.0	28	56.0	22	44.0	36	100.0	25	69.4	11	30.6	14	100.0	3	21.4	11	78.6
Varicocele or hernia	7	100.0	6	85.7	1	14.3	7	100.0	6	85.7	1	14.3						
Defective eye sight	73	100.0	17	23.3	56	76.7	32	100.0	6	18.7	26	81.3	41	100.0	11	26.8	30	73.2
Heart affection	17	100.0	10	58.8	7	41.2	5	100.0	4	80.0	1	20.0	12	100.0	6	50.0	6	50.0
Lung affection	11	100.0	3	27.3	8	72.7	3	100.0			3	100.0	8	100.0	3	37.5	5	62.5
Nervous overstrain	28	100.0	8	28.6	20	71.4	20	100.0	1	5.0	19	95.0	8	100.0	7	87.5	1	12.5
Other defects	477	100.0			477	100.0	233	100.0			233	100.0	244	100.0			244	100.0
Total defects	922	100.0	260	28.2	662	71.8	444	100.0	133	30.0	311	70.0	478	100.0	127	26.6	351	73.4

Note.— The defects of the 27 children for whom no work analysis was made, are not included.

[1] The Health of the Working Child, Special Bulletin No. 134. State of New York. Dept. of Labor. Dec., 1924. A splendid comprehensive report. Should be read by health workers. This report and the studies in Milwaukee are reviewed in the Survey, April 15, 1925.

to be met by the application of sound medical principles to a knowledge of conditions under which a child must work on a given job. Common sense usually determines the answer in a given case. Working near machinery or moving objects demands normal eyes and hearing. A cardiac can not do active, rapid work.

Causes of the Child Labor Problem

No consideration of this subject is complete without investigating the reasons for the problem of child labor. Briefly it is an economic situation.

1. Tasks which can be filled at a certain expense by this group, would cost more if done by others and would increase the expense of production. The competition in an open market must be met, or a tariff to offset it must be available; and in the latter case, the expense of the product must increase. Industry can pay certain wages and survive.
2. The family of the industrial worker is large and youth sooner or later must assist by earnings—the question is largely at what age. In the cases where the breadwinner of the family dies and the child has to go to work because of this situation, some authorities advocate widows' pensions as a solution. The minimum age must be determined largely as that one at which the given task can be performed without permanent or temporary damage to the child either physically or as a future citizen. Therefore certain minimums of education and age as well as physical welfare are required. The industrial group marry in the late teens.
3. Children are impelled to leave school for many reasons:
   (*a*) Because they dislike it—the Junior High School with its wide variety of courses of different types, is offered as a solution at adolescence.
   (*b*) They may not have the mental ability to study beyond a certain grade, successfully. The mental tests have revealed wide difference in individual mental capacities and adaptibilities. In certain carefully studied groups of working children about half were on the borderline or below. In this case, either special provision must be made according to their aptitudes, so that they can advance in work permitted, perhaps on the basis that it is vocational training of a sort; the more special tests have shown that aptitudes for different tasks vary, and conceivably certain children may be best fitted for certain industrial positions.
   (*c*) Family need (and this has already been discussed). On the other hand *it is pretty well recognized that today few who really desire to continue their education can not find means of so doing, if they care enough about it.*

Needs in Child Labor Control

Today the greatest need is for a standardized and national system for handling child labor. Variation between states form important factors in

interstate competition between manufacturers as in the case where Massachusetts compels half a day a week attendance at the Continuation School between fourteen and sixteen while Rhode Island, by not doing this, is able to manufacture certain products at smaller expense although the products are in no way different from the Massachusetts product of similar name.

A national system must be of a constructive type, fair equally to child and employer, not permitting the exploitation of children but permitting them to engage in gainful tasks at the earliest reasonable age, assuming their desire to do so exists. Factory inspection must be adequate; permissible tasks carefully chosen, and hazards avoided.

The health of the working child can be improved, beginning in the preschool age. Granting adequate prenatal and obstetric service, followed by satisfactory preschool and school health work, we can expect a reasonably healthy group, arriving at adolescence. If certain who desire it, can be permitted to work at suitable tasks, fitted to their mental and physical ability, and if, during the performance of these tasks, their health is guarded both by the industry and the public authorities, then we may expect safely to permit labor at a reasonably early time in adolescence.

We know very little scientifically of the effect of labor on the adolescent. The mere statement that health defects exist among working adolescents is important but the question is—does labor increase the number of defects as compared with defects which exist in school children of the same age and social group?

The whole subject needs careful field studies of the physical and mental effect of child labor under varied conditions and in varied industries. Such studies have been made by Mitchell in Newark, N. J., Rowell in New Bedford, Mass., in New York City, N. Y., and in Milwaukee, Wis. From many such studies successful standards can be determined. Until such literature is amply available, we shall make little mistake in attempting to conform to the standards set by the Committee at the request of the Children's Bureau, although it is always possible and expected that future investigations may make changes in them advisable. The Massachusetts, New York, and Virginia Laws may be studied to advantage. Space does not permit publishing them here.

A happier term for the real question to be decided would be *Adolescent Labor* since the question is largely as to what *birthday age* in adolescence a given individual of *a given physiological, mental, moral,* and *social* development may engage in suitable gainful labor.

A PLAN FOR A DEMONSTRATION OF A HEALTH AND PERSONAL GUIDANCE SERVICE IN CONTINUATION SCHOOLS

The continuation schools in the City of New York have offered, for many years, an opportunity for extensive study of the adolescent children in industry between fourteen and seventeen years of age. Through the direct cooperation of the Board of Education, the Dept. of Health, and the Public Education Association, and the indirect coöperation of many of the local

health and educational organizations, it has been possible to arrange for a three year experiment in one of the New York City Continuation Schools to determine what kind of organization, equipment, and service should be set up within each continuation school to safeguard and promote the health and welfare of the adolescent in industry. At the end of the three year period, it is hoped that the City will see fit to adopt the recommendations formulated on the basis of the work done.

In establishing such an experiment, the following procedure is being followed, subject to modification in the light of experience.

1. Personal examinations. The physical and mental health of each child will be determined.

2. Correction of defects. Such corrections will be made with the cooperation of the homes, employers, local physicians, clinics, and social agencies.

3. Vocational guidance. The kind of employment for a child will be adapted, as far as possible, to his physical and mental capacities. Such a procedure will involve whatever reëxaminations, readjustments, and follow-up may be necessary and possible.

4. Study of problem children. Such children will require environmental and personality adjustments.

5. Research. (*A*) Evaluation of the data and experience of the three years' work.

(*B*) The formulation of standards of personnel, equipment, technic, and follow-up practices for adequate child conservation service in continuation schools.

6. Objective. On the basis of this experiment, to formulate recommendations to the City for the establishment, in accordance with standards developed, of such an organization in each Continuation school, as will meet the problems revealed by the demonstration.

Personnel

Advisory Committee. An advisory committee has been appointed by the Public Education Association. This committee will have a field representative at the school. Special sub-committees will make periodic visits to the school in order to aid in the development of the work.

Expert staff. *A. Medical service.*

1. A Director, assigned by the Health Commissioner, to be in charge of the medical aspects of the demonstration.

2. Four physicians, two men, two women, assigned by the Commissioner of Health, to conduct the physical examinations and to make necessary recommendations for treatment.

3. Dental consultants, who will be provided by the dental member of the Advisory Committee.

4. One nurse, provided by the Department of Health, to aid in the work of the doctors, and perform other duties to be assigned.

5. One full-time industrial inspector, provided by the Department of Health, to work with the doctors and the employment office, and to aid in

making the occupational adjustments recommended as part of the treatment growing out of the examination of the children.

B. Service for the maladjusted children.

1. A visiting teacher, to be employed by the Public Education Association, from funds provided primarily by the New York Foundation, to whom problem children will be referred. She will ascertain the environmental and personality factors entering into the difficulties of these children and will secure through available clinical facilities in New York the necessary psychiatric treatment to handle those problems arising where mental diagnosis and prescription of mental treatment are required.

2. Psychiatrists, provided there proves to be a sufficient number of mental hygiene cases to require such additions to the staff. *Note.* Provision will be made for the psychological testing of the entire group of children included in the demonstration. This testing will be done under the supervision of some local educational institution.

C. Health Education.

1. One full-time trained teacher of Health Education, at least, to be provided by the Board of Education, whose services shall be available to the Committee, to cooperate with all local organizations doing health education work. It is felt that this demonstration is a splendid opportunity for the development and evaluation of methods and material for health education in continuation schools.

D. Vocational guidance and placement.

1. The objects will be accomplished by close cooperation between all persons working in the demonstration and the Vocational Service for Juniors, so that all information will be available for the office maintained by the latter group at the West Side Continuation School, where the demonstration is to be held.

E. Executive detail.

1. A person who will act as executive secretary, to organize and supervise the machinery necessary for keeping records, compiling data, check-up follow-up work and generally coordinating the different phases of the work of the demonstration.

2. An assistant for the executive secretary, to be assigned by the Board of Education, to be in immediate charge of the activities indicated under (1).

3. One stenographer-clerk, with subsequent additions if needed, to be provided by the Board of Education.

Equipment and Supplies

To house and provide for the conduct of the foregoing service, the following is required:

(*A*) *Rooms:*

(1) For executive staff—one office.

(2) For medical examinations—two rooms.

(3) For visiting teacher—one room for interviews.

(*B*) *Equipment:*

1. For office, executive staff—usual desks, chairs, typewriters, filing cabinets, telephone, stationery and clerical supplies.

2. For examining rooms:

1 Desk
1 Chair
1 Examination Table
2 Stools (white enamel)
1 Pillow
1 Pad for examination table
1 Stethoscope
1 Baumanometer (wall type)
1 Box Wooden Tongue Depressors
1 Nasal Speculum
1 Head Mirror
1 Examining Lamp (wall type) adjustable
1 Nest Ear Specula
1 Set Vision test type (Snellen)
1 Scales (with high measuring rod)
2 doz. towels
2 doz. Cylinder glasses (8 oz.)
2 doz. Test tubes
1 Test tube rack (12)
1 Bunsen Burner
Litmus Paper
500 cc. Nitric acid
500 cc. Acetic acid (3 percent)
Fehling's Solution or
1000 cc. Benedict's Solution
1 Hydrometer
1 Thermometer
1 Tape Measure
Hemoglobin Scale
Sterilizer
First Aid Supplies
2 doz. Split sheets for chest examinations
Pedograph
Schematograph

3. For the visiting teacher—one room (with desk, chairs and telephone), suitable for interviewing pupils, parents and others on intimate matters which constantly arise in dealing with problem children.

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